Data Rec. Oceanogr.
Fish.(Hokkaido Univ.)
No. 2 1958
海洋漁業要報(北大水産)
第2号 昭和33年

Data Rec. of Oceanog. Observ. & Expl. Fishing

DATA RECORD
OF
OCEANOGRAPHIC OBSERVATIONS AND
EXPLORATORY FISHING

No. 2

海 洋 調 査 漁 業 試 験 要 報

第 2 号

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THE FACULTY OF FISHERIES, HOKKAIDO UNIVERSITY
Hakodate, Hokkaido, Japan
June 1958

北 海 道 大 学 水 産 学 部
函 館 市 港 町
昭 和 3 3 年 6 月

Publications issued by the Faculty of Fisheries, Hokkaido University

Bulletin of the Faculty of Fisheries, Hokkaido University

Vol. 1, No. 1,	December	1950	Vol. 5, No. 2,	August	1954
Vol. 1, No. 2,	February	1951	Vol. 5, No. 3,	November	1954
Vol. 1, No.3-4,	March	1951	Vol. 5, No. 4,	February	1955
Vol. 2, No. 1,	June	1951	Vol. 6, No. 1,	May	1955
Vol. 2, No. 2,	September	1951	Vol. 6, No. 2,	August	1955
Vol. 2, No. 3,	December	1951	Vol. 6, No. 3,	November	1955
Vol. 2, No. 4,	February	1952	Vol. 6, No. 4,	February	1956
Vol. 3, No. 1,	May	1952	Vol. 7, No. 1,	May	1956
Vol. 3, No. 2,	August	1952	Vol. 7, No. 2,	August	1956
Vol. 3, No. 3,	January	1953	Vol. 7, No. 3,	November	1956
Vol. 3, No. 4,	March	1953	Vol. 7, No. 4,	February	1957
Vol. 3, Special Number,	March	1953	Vol. 8, No. 1,	May	1957
Vol. 4, No. 1,	May	1953	Vol. 8, No. 2,	August	1957
Vol. 4, No. 2,	August	1953	Vol. 8, No. 3,	November	1957
Vol. 4, No. 3,	November	1953	Vol. 8, No. 4,	February	1958
Vol. 4, No. 4,	February	1954	Vol. 9, No. 1,	May	1958
Vol. 5, No. 1,	May	1954			

Memoris of the Faculty of Fisheries, Hokkaido University

Vol. 1, No. 1,	March	1953	Vol. 4, No. 1,	August	1956
Vol. 2, No. 1,	December	1954	Vol. 4, No. 2,	December	1956
Vol. 3, No. 1,	August	1955	Vol. 5, No. 1,	December	1957
Vol. 3, No. 2,	December	1955	Vol. 5, No. 2,	December	1957

Data Record of Oceanographic Observations and Exploratory Fishing

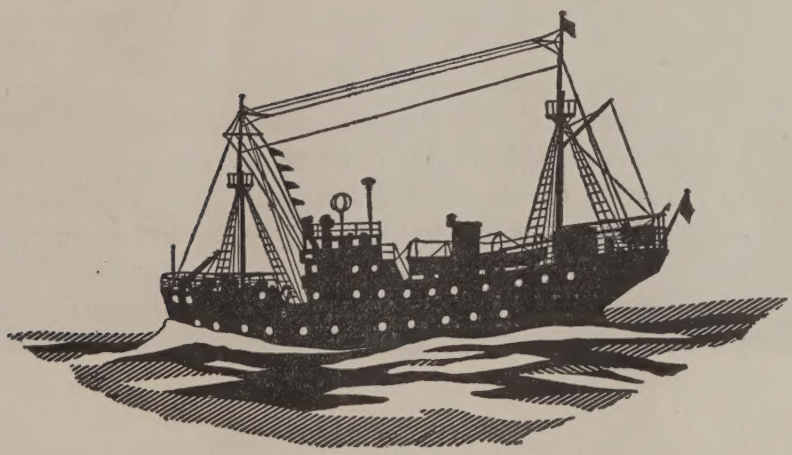
No. 1	May	1957
No. 2	June	1958

DATA RECORD
OF
OCEANOGRAPHIC OBSERVATIONS AND
EXPLORATORY FISHING

No. 2

海洋調査漁業試験要報

第 2 号



THE FACULTY OF FISHERIES, HOKKAIDO UNIVERSITY
Hakodate, Hokkaido, Japan
June 1958

北海道大学水産学部
函館市港町
昭和33年6月

EXPLANATORY NOTE

This publication is being undertaken for the sake of making available to interested persons, as soon as possible, some preliminary data derived from oceanographic, biological or exploratory-fishing researches carried out on the regular or occasional cruises of the training ships of the Faculty of Fisheries, Hokkaido University.

It is requested that due credit be given in data from this "Data Record" are quoted, or if information taken herefrom is incorporated in other papers.

本学部練習船を用いて行われた海洋観測，生物調査，漁業試験の結果が，各研究担当者によつて研究論文として纒められ，印刷公表されるまでにはかなりの時日を要し，且研究論文には個々の測定値が表示されない場合が多いことを考慮し，練習船の調査航海毎に調査成果を本要報として逐次刊行し，各方面の参考に供することにした。

本要報に載せた測定結果を他に引用する場合は本要報によつた旨明記しおかれたい。

Fig. 1 View of departure for 1957 cruise of the "Oshoro Maru" to Aleutian waters

Fig. 2 View of oily-herring fishing on 1957 cruise of the "Hokusei Maru" to the Okhotsk Sea

DATA RECORD
OF
OCEANOGRAPHIC OBSERVATIONS AND EXPLORATORY FISHING

No. 2 June 1958

海 洋 調 査 漁 業 試 験 要 報

第 2 号 昭和33年6月

The Faculty of Fisheries, Hokkaido University

北 海 道 大 学 水 産 学 部

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I

1957 CRUISE OF THE "OSHORO MARU" TO ALEUTIAN WATERS

おしよろ丸　昭和32年度
アリューシャン海域航海

1. Cruise Report
（航海報告）

Departure from Hakodate	June 6	（函館出港）
First salmon gill-net set	June 9	（鮭鱒流網開始）
Steering back for landing a patient	June 11	（患者揚陸のため釧路へ転針）
Anchoring at Kushiro	June 14～15	（釧路仮泊）
First hydrographic cast	June 19	（海洋観測開始）
Passed Amukta Pass	July 7	（アムクタ水道通過）
Last salmon gill-net set	July 16	（鮭鱒流網終了）
Last hydrographic cast	July 17	（海洋観測終了）
Arrival at Hakodate	July 21	（函館入港）
Covered 6794 miles in total 46 days at sea		（総航程6794浬、航海日数46日）

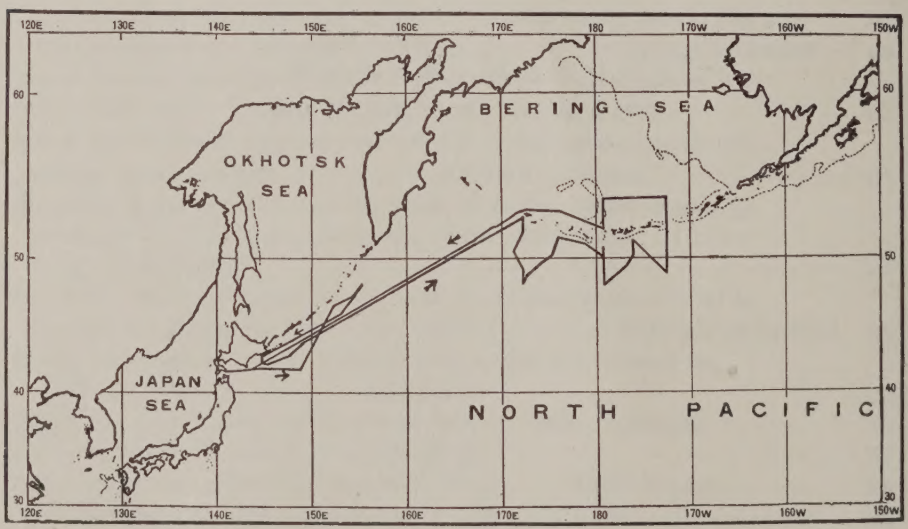

Fig. 3 Track of 1957 cruise of the "Oshoro Maru" to Aleutian waters

2. Members of Staff Aboard
（乗 船 者）

Captain	Takeji Fujii	（船　長　藤 井 武 治）
Crew		
Chief Officer	Shigeo Abe	（一等航海士　阿 部 茂 夫）
First Officer	Shoji Saito	（次席一等航海士　斎 藤 昭 二）
Second Officer	Noriyoshi Masuda	（二等航海士　増 田 紀 義）
Third Officer	Shigekatsu Nakane	（三等航海士　中 根 重 勝）

Chief Engineer	Shoichi Tomisawa	(機関長 富沢正一)
First Engineer	Kenzo Omi	(一等機関士 尾見健三)
Second Engineer	Ichiro Kataoka	(二等機関士 片岡一郎)
Third Engineer	Tetsusaburo Inomata	(三等機関士 猪股鉄三郎)
Chief Wireless Operator	Toshio Kasao	(首席通信士 笠尾俊雄)
Junior Wireless Operator	Mitsuo Kurotori	(次席通信士 黒鳥満雄)
Purser	Akira Togashi	(事務長 富樫章)
Doctor	Hideo Kuramata	(船医 倉俣英夫)

and 20 men

Research men

Assistant Professor (Leader)	Hideto Koto (Physical oceanography) (団長 助教授 小藤英登 海洋)
Research Assistant	Masateru Anraku (Biology) (助手 安楽正照 生物)
Research Assistant	Tetsuichiro Kinoshita (Biology) (助手 木下哲一郎 生物)
Research Assistant	Nobuo Ono (Physical oceanography) (助手 小野延雄 海洋)
Graduate Student	Kohei Karohji (Biology) (大学院学生 唐牛公平 生物)
Graduate Student	Takashi Minoda (Biology) (大学院学生 箕田嵩 生物)
Student	Hisayuki Kai (Biology) (学生 甲斐久行 生物)

Cadets (実習生)

28 cadets of Advanced Course of Pelagic Fishery (遠洋漁業特設専攻科学生28名)

Total 68 persons (総員 68名)

3. Research Committee
(調査委員)

Professor (Coordinator)	Sigeru Motoda (Plankton, chemistry) (代表 教授 元田茂 プランクトン 化学)
Professor	Shin-ichi Sato (Ichthyology) (教授 佐藤信一 魚類)
Professor	Naoichi Inoue (Radio-activity) (教授 井上直一 放射能)
Assistant Professor	Hideto Koto (Physical oceanography) (助教授 小藤英登 海洋)
Assistant Professor	Tatsuro Kubo (Salmon) (助教授 久保達郎 鮭鱒)
Assistant Professor (Captain)	Takeji Fujii (Fisheries, meteorology) (助教授 藤井武治 漁業、気象)
Lecturer	Ken-ichiro Kyushin (Salmon) (講師 久新健一郎 鮭鱒)

4. Specification of Hydrographic Stations
(海 洋 観 測 地 点)

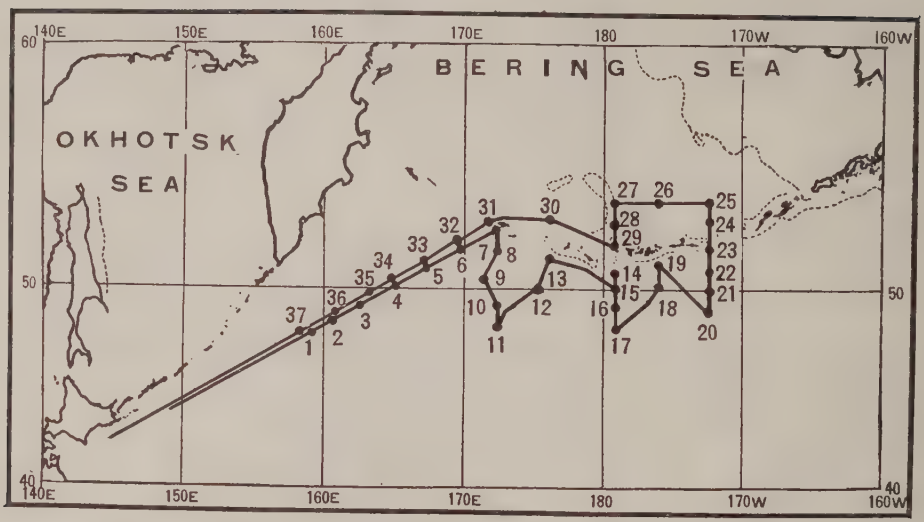

Fig. 4 Hydrographic stations on 1957 cruise of the "Oshoro Maru"

Table 1. Hydrographic stations on 1957 cruise to Aleutian waters

No. of Station	Ship's time		Greenwich meen time		Position		Maximum depth of cast (m)
	Date	Hour	Date	Hour	Latitude	Longitude	
Os 1	06—19	1039～1305	06—19	0039～0305	N48°00′	E158°35′	1373
Os 2	06—20	1430～1559	06—20	0330～0459	N48°45′	E160°33′	1022
Os 3	06—21	0910～1115	06—20	2210～0015	N49°45′	E162°45′	1266
Os 4	06—22	0300～0501	06—21	1600～1801	N50°20′	E164°41′	1371
Os 5	06—22	2040～2209	06—22	0940～1109	N51°14′	E167°16′	1413
Os 6	06—23	1820～2010	06—23	0720～0910	N52°04′	E169°35′	1462
Os 7	06—25	1330～1540	06—25	0230～0440	N52°55′	E171°50′	1242
Os 8	06—26	0005～0221	06—25	1305～1521	N51°37′	E171°30′	1165
Os 9	06—26	0935～1145	06—25	2235～0045	N50°37′	E171°12′	1362
Os 10	06—26	2045～2250	06—26	0945～1150	N49°28′	E171°50′	1470
Os 11	06—27	1210～1347	06—27	0110～0247	N48°18′	E171°43′	1488
Os 12	06—29	0905～1040	06—28	2105～2240	N50°29′	E175°47′	1440
Os 13	06—29	1710～1910	06—29	0510～0710	N51°30′	E176°01′	1414
Os 14	07—02	0535～0720	07—01	1735～1920	N50°50′	W179°10′	1211
Os 15	07—01	2300～0030	07—01	1100～1230	N50°07′	W179°13′	1471
Os 16	07—02	1725～1910	07—02	0525～0710	N49°08′	W179°10′	701
Os 17	07—03	0310～0446	07—02	1510～1646	N48°00′	W179°12′	1283
Os 18	07—04	0235～0414	07—03	1435～1614	N50°18′	W176°00′	1348
Os 19	07—04	1105～1305	07—03	2305～0105	N51°19′	W175°59′	1401
Os 20	07—05	0845～1040	07—04	2045～2240	N49°00′	W172°37′	1123
Os 21	07—05	1600～1805	07—05	0400～0605	N49°59′	W172°23′	1265
Os 22	07—06	1205～1400	07—05	2305～0100	N51°00′	W172°11′	1417
Os 23	07—06	1955～2200	07—06	0655～0900	N51°50′	W172°00′	1345
Os 24	07—07	1255～1500	07—06	2355～0200	N53°00′	W171°59′	1314
Os 25	07—07	2030～2200	07—07	0730～0920	N53°50′	W172°00′	1431
Os 26	07—08	2010～2200	07—08	0810～1000	N53°45′	W176°01′	1375
Os 27	07—09	0905～1100	07—08	2105～2300	N53°47′	W179°11′	1444
Os 28	07—09	1725～1910	07—09	0525～0710	N52°50′	W179°11′	1420
Os 29	07—10	1100～1250	07—09	2300～0050	N52°01′	W179°11′	1101
Os 30	07—11	1215～1420	07—11	0015～0220	N53°00′	E175°59′	880
Os 31	07—13	0615～0810	07—12	1815～2010	N52°56′	E171°51′	1411
Os 32	07—13	1830～2025	07—13	0730～0925	N52°07′	E169°35′	1433
Os 33	07- 14	2005～2200	07—14	0905～1100	N51°13′	E167°16′	1341
Os 34	07—15	0700～0900	07—14	2000～2200	N50°25′	E165°15′	1392
Os 35	07—15	2000～2210	07—15	0900～1110	N49°42′	E163°07′	1442
Os 36	07—16	1620～1815	07—16	0520～0715	N48°50′	E160°46′	1401
Os 37	07—17	0500～0630	07—16	1800～1930	N47°55′	E158°21′	1343

5. Items of Observations and Procedure at Sea
(調査項目及び海上作業)

Meteorological observations (気象観測)

Every three-hour-interval, covering the whole course.

Measurement of surface temperature (表面水温観測)

Every hour-interval, covering the whole course.

Hydrographic cast (海洋観測)

At 37 stations, covering depths from the surface to usually 1500 m. Cast to 0, 10, 20, 30, 50, 75, 100, 150, 200, 300, 400, 500, 600, 800, 1000, 1200 and 1500 m, in length of wire paid out.

In deep cast each Nansen bottle carried two protected thermometers and an unprotected thermometer.

Analyses of water samples (試水分析)

Chlorinity and dissolved oxygen were measured on almost all depths and stations.

Radio-activity of sea water (海水放射能)

A litre of surface water (at two stations also 50 m depth) was dipped and preserved.

Plankton sampling (プランクトン採集)

Duplicate vertical hauls with NORPAC standard Net (45cm×180cm) from approximately 150m depth at each hydrographic station.

Vertical hauls with double Net (Outer net 30cm×150cm, bolting silk XX13; Inner net 30cm×100cm, bolting silk GG 26) from approximately 100m depth at each hydrographic station.

Horizontal tows with Double Net at the surface for ten minutes at low speed after the hydrographic cast, and also at sunset covering the whole course.

Vertical hauls with 30cm×150cm fine mesh net from approximately 100m depth at each hydrographic station.

Fish larva net tow (稚魚ネット曳網)

With 130cm × 450cm stramin conical net (bolting silk, GG 54, at the posterior potion) by making horizontal tow at the surface for ten minutes at low speed. at every hydrographic station as well as at sunset daily while underway.

Salmon gill-net operation (鮭鱒流網漁業試験)

14 operations were carried out at different locations.

Measurement of biological characters on fish caught by salmon gill-net fishing. (漁獲標本の生物学的測定)

Observations on stomach contents of salmon caught with gill-net (鮭鱒胃内容物観察)

Eye observations of whales, other marine mammals, etc. (鯨海獣等の目視観察)

6. Publications Issued up to the Present
(発表された報告, 研究論文)

(1) Kobayashi, K. 1958. Larvae and youngs of the Atka mackerel, *Pleurogrammus monopterygius* (PALLAS), in the North Pacific. Bull. Fac. Fish., Hokkaido Univ. 8 (4), 297—303.

7. Data on Meteorological Observations
(気 象 観 測 記 録)

Observations were made under sponsorship of ship's officers at every three-hour-interval at sea.

Y'Y': Date and time in Greenwich Mean Time (Universal Time)

Movement of wind direction (dd) and speed (ff) were measured by means of aerovane type anemometer set on the top of pole on bridge at the height of 10.5 meters above the sea surface.

Measurements of air temperature (TT) and dew point temperature (TdTd) were made by means of Asmann aspiration dry and wet bulb thermometer set on the upper deck at the height of 5 meters above the sea surface.

TtTtTt: Temperature of surface water (00.0C).

X: Uncertain.

Table 2. Data on meteorological observations on 1957 cruise to Aleutian waters

Y'Y'		Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_1T_1T_1$	Sea		Swell	
06	06	2	418	430	18	7	12	16	98	02	2	099	07	6	5	5	2	0	1	06	51	06	12	074	E S E	4	E S E	2
06	06	2	419	434	21	8	07	11	98	02	2	108	06	8	0	4	2	0	2	09	51	05	07	066	E N E	3	E N E	1
06	07	2	419	440	00	8	07	08	97	02	2	117	07	8	6	5	0	0	2	09	54	05	07	092	E N E	3	E N E	1
06	07	2	419	446	03	8	05	07	97	02	2	121	07	8	6	5	0	0	2	01	56	06	05	098	E N E	3	E N E	1
06	07	2	420	452	06	8	06	07	98	02	2	119	07	8	6	5	0	0	5	02	51	06	06	070	E N E	3	E N E	1
06	07	2	420	458	09	8	09	07	98	02	2	121	06	8	6	5	0	0	3	02	50	06	09	063	East	3	East	1
06	07	2	420	462	12	8	09	06	97	02	2	130	07	8	6	5	0	0	2	09	51	06	09	072	East	2	East	1
06	07	2	420	467	15	8	11	11	97	02	2	119	07	8	6	5	0	0	7	11	52	07	09	078	East	2	East	1
06	07	2	420	472	18	8	09	07	98	02	2	106	06	8	6	5	0	0	8	13	51	06	09	067	East	3	E S E	1
06	07	2	420	477	21	8	09	12	98	02	2	104	06	8	6	5	0	0	7	02	52	06	09	069	East	4	E S E	1
06	08	2	420	480	00	8	08	14	97	02	2	097	06	8	6	5	0	0	7	07	50	05	09	061	East	4	East	2
06	08	2	420	480	03	8	08	12	96	02	2	094	08	8	6	5	0	0	7	03	02	08	08	066	East	4	East	2
06	08	2	423	480	06	8	07	15	97	21	2	094	06	8	6	5	0	0	5	00	01	06	07	055	E N E	4	East	2
06	08	2	426	487	09	8	07	16	98	21	2	092	06	8	6	6	0	0	7	02	00	06	07	053	E N E	4	East	2
06	08	2	429	491	12	8	07	16	96	02	2	112	06	8	6	5	0	0	2	20	02	06	07	046	E N E	4	East	2
06	08	2	432	495	15	8	07	10	96	60	6	096	06	8	6	5	0	0	5	16	02	06	07	048	E N E	3	E N E	2
06	08	2	433	495	18	8	07	10	95	51	5	091	05	8	6	5	0	0	5	05	00	05	07	053	E N E	2	E N E	2
06	08	2	436	499	21	9	05	07	93	47	4	096	05	9	×	0	×	×	3	05	50	05	06	054	N E	2	E N E	2
06	09	2	439	503	00	8	06	10	97	02	4	097	06	8	6	5	0	0	2	01	51	06	06	062	E N E	3	E N E	1
06	09	2	442	507	03	8	05	10	93	40	2	180	06	8	6	5	0	0	3	03	51	06	05	064	N E	3	E N E	2
06	09	2	446	506	06	8	05	10	97	28	2	106	05	8	6	5	0	0	2	06	51	05	05	054	N E	3	East	3
06	09	2	446	511	09	8	05	10	98	02	2	106	05	8	6	5	0	0	4	00	00	05	05	052	N E	3	East	2
06	09	2	446	511	12	8	05	10	98	02	2	106	05	8	6	5	0	0	4	00	51	05	05	054	N E	3	East	1
06	09	2	446	511	15	8	07	09	98	02	2	099	05	8	6	5	0	0	5	07	51	05	07	054	E N E	3	East	1
06	09	2	446	511	18	8	05	07	98	02	2	099	06	8	6	5	0	0	4	00	01	06	05	052	N E	3	East	2
06	09	2	446	511	21	8	05	07	98	02	2	106	05	8	6	5	0	0	2	07	00	05	05	052	N E	3	East	2
06	10	2	450	515	00	8	05	10	95	21	2	108	05	8	6	5	0	0	2	02	00	05	05	050	N E	3	East	2
06	10	2	452	519	03	8	05	09	97	21	6	113	05	6	6	5	2	0	0	05	51	04	05	052	N E	3	E N E	2
06	10	2	455	523	06	8	03	09	97	21	6	118	04	6	6	5	2	0	2	05	00	04	03	038	N N E	3	East	2

Table 2. (Continued)

Y'Y'	Q	$L_aL_aL_a$	$L\ L_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_xT_x	T_dT_d	d_wd_w	$T_rT_rT_r$	Sea	Swell
06 10	2	457	526	09	8	05	16	98	21	6	124	04	8	6	5	0	0	2	06	51	04	05	014	NE 3	ESE 2
06 10	2	459	527	12	8	03	16	96	21	2	133	01	8	0	6	2	0	2	09	50	04	03	010	NE 3	ESE 2
06 10	2	462	532	15	8	01	07	97	02	2	135	03	8	6	5	0	0	0	02	52	03	03	038	NNE 3	ESE 3
06 10	2	465	536	18	8	02	09	97	28	2	140	03	8	6	5	0	0	2	05	00	03	02	032	NNE 3	East 4
06 10	2	468	540	21	9	02	09	94	45	2	153	03	9	×	0	×	×	2	13	51	03	02	038	NNE 3	East 1
06 11	2	470	542	00	8	02	08	97	02	5	160	03	8	6	5	0	0	2	07	51	—	02	038	NNE 3	East 2
06 11	2	474	546	03	8	01	06	98	02	2	161	03	8	6	5	0	0	2	01	52	03	01	040	North 2	East 2
06 11	2	478	550	06	8	32	04	98	02	2	161	03	8	6	5	0	0	4	00	52	03	32	040	NW 2	ESE 2
06 11	2	481	555	09	9	34	10	93	47	2	161	04	9	×	0	×	×	4	00	51	04	34	042	NNW 3	ESE 1
06 11	2	482	556	12	8	31	10	92	44	4	161	04	8	6	5	0	0	4	00	00	04	31	043	NW 3	SE 2
06 11	2	479	551	15	8	30	04	93	43	4	172	02	8	6	5	0	0	2	11	54	—	30	040	WNW 1	ESE 1
06 11	2	475	547	18	8	30	05	97	28	4	175	02	8	6	5	0	0	1	03	55	—	30	042	WNW 2	ESE 1
06 11	2	471	542	21	9	29	09	93	45	5	183	02	9	×	0	×	×	2	08	53	—	27	034	WNW 3	ESE 1
06 12	2	468	537	00	8	27	05	96	40	5	186	02	8	6	5	0	0	2	03	53	—	27	036	West 3	ESE 1
06 12	2	462	531	03	8	22	01	97	11	2	186	01	6	6	5	2	0	4	00	52	—	22	044	SW 2	East 1
06 12	2	458	526	06	8	21	05	98	02	2	179	04	8	6	5	0	0	7	07	50	—	21	043	SSW 2	East 1
06 12	2	454	522	09	9	21	08	93	47	2	171	04	9	×	0	×	×	8	08	51	—	21	045	SSW 3	East 1
06 12	2	450	518	12	8	21	07	96	02	4	161	05	8	6	5	0	0	8	10	50	—	21	054	SSW 2	SW 1
06 12	2	447	513	15	8	20	08	97	02	2	143	06	8	6	5	0	0	6	18	01	—	20	055	SSE 2	SW 1
06 12	2	443	509	18	8	18	07	97	02	2	133	06	5	5	4	2	0	7	10	01	—	18	054	South 3	East 1
06 12	2	439	505	21	8	18	10	96	62	2	132	07	3	6	4	2	0	5	01	03	–	21	056	SSW 3	East 1
06 13	2	436	500	00	8	20	11	95	61	6	128	09	8	6	5	0	0	7	04	01	—	20	067	SSW 3	SW 1
06 13	2	438	497	03	8	20	10	95	02	6	111	09	8	6	5	0	0	7	17	06	—	20	060	SSW 2	SW 1
06 13	2	436	494	06	9	18	07	93	47	4	096	09	9	×	0	×	×	7	15	05	—	18	066	South 3	SW 1
06 13	2	434	492	09	9	20	07	92	45	4	082	09	9	×	0	×	×	6	14	05	—	20	068	SSW 3	SW 1
06 13	2	432	488	12	9	20	10	92	45	4	087	09	9	×	0	×	×	3	05	03	—	20	071	SSW 3	SW 1
06 13	2	428	472	15	9	20	10	92	45	4	071	09	9	×	0	×	×	7	16	03	—	20	074	SSW 3	SW 1
06 13	2	428	466	18	9	18	09	93	60	4	063	09	9	×	0	×	×	7	08	05	—	18	064	South 3	SSW 2
06 13	2	428	460	21	9	18	09	93	47	6	046	07	9	×	0	×	×	7	17	02	—	18	062	South 3	SSW 2

Table 2. (Continued)

Y'Y'		Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_wT_wT_w$	Sea	Swell	
06	14	2	430	454	00	7	23	05	97	02	4	030	08	7	5	6	0	0	7	16	03	—	23	066	SW	3	SSW 2
06	15	2	426	446	06	1	24	03	98	01	0	106	13	1	4	6	5	1	0	02	07	10	24	075	WSW	1	SSE 1
06	15	2	423	450	09	1	30	06	99	02	0	121	10	1	8	7	0	0	3	15	04	09	30	080	WNW	1	ESE 1
06	15	2	422	455	12	8	33	04	97	02	1	126	09	8	6	5	0	0	2	05	00	08	33	087	NNW	2	SSE 1
06	15	2	424	464	15	8	05	07	97	02	2	128	08	8	6	5	0	0	2	02	00	07	05	074	NE	2	0 0 0
06	15	2	427	466	18	8	34	07	97	02	2	119	06	8	6	5	0	0	7	09	00	06	34	060	NNW	2	NNE 1
06	15	2	429	471	21	8	02	15	97	02	2	131	06	8	6	5	0	0	2	12	53	06	03	074	NNE	4	0 0 0
06	16	2	432	476	00	8	01	10	97	02	2	136	06	8	6	5	0	0	2	05	53	06	01	073	NNE	2	0 0 0
06	16	2	432	478	03	8	01	06	97	02	2	126	05	8	6	5	0	0	7	10	55	05	01	074	North	2	NNE 1
06	16	2	435	482	06	8	36	07	97	02	2	121	05	8	6	5	0	0	5	05	52	05	36	060	North	3	NNE 3
06	16	2	438	487	09	9	27	06	92	47	2	119	05	9	×	0	×	×	7	02	01	05	27	047	West	1	NE 1
06	16	2	440	492	12	9	26	03	92	47	4	114	03	9	×	0	×	×	7	05	51	03	26	040	WSW	1	NE 1
06	16	2	442	497	15	9	23	07	92	45	4	101	03	9	×	0	×	×	5	13	56	03	23	062	SW	2	NE 1
06	16	2	442	503	18	9	25	07	93	25	4	097	03	9	×	0	×	×	5	04	55	03	25	056	WSW	2	ENE 1
06	16	2	446	507	21	9	22	10	91	45	4	092	04	9	×	0	×	×	8	05	52	04	22	052	SW	3	ENE 1
06	17	2	449	514	00	8	21	10	95	44	4	073	05	8	6	5	×	×	7	19	51	05	21	054	SSW	2	East 1
06	17	2	452	520	03	9	22	11	93	45	4	071	06	9	×	0	×	×	5	02	51	06	22	059	SW	3	SW 2
06	17	2	455	525	06	9	20	11	93	45	4	059	05	9	×	0	×	×	6	12	03	05	20	038	SSW	3	SW 2
06	17	2	457	531	09	9	20	11	93	45	4	056	06	9	×	0	×	×	6	03	03	06	20	039	SSW	3	WSW 2
06	17	2	460	536	12	9	20	10	92	45	4	066	05	9	×	0	×	×	2	10	01	05	20	046	SSW	3	WSW 2
06	17	2	462	543	15	9	29	05	92	45	4	068	04	9	×	0	×	×	0	02	01	04	29	038	WNW	1	NW 1
06	17	2	465	548	18	9	25	04	93	43	4	079	04	9	×	0	×	×	2	11	01	04	25	037	WSW	2	West 1
06	17	2	467	554	21	9	27	06	93	43	4	093	05	9	×	0	×	×	2	14	01	05	27	044	West	2	WSW 1
06	18	2	469	560	00	8	23	02	95	44	4	107	06	8	6	5	0	0	2	14	01	05	23	051	SW	1	West 1
06	18	2	472	567	03	9	13	03	94	12	4	126	06	9	×	0	×	×	2	19	01	05	13	050	SE	1	WSW 1
06	18	2	474	573	06	8	12	05	97	28	4	144	06	8	6	5	×	×	2	18	01	05	12	050	ESE	2	WSW 1

Table 2. (Continued)

Y'Y'	Q	$L_1L_2L_3$	$L_4L_5L_6$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$	Sea	Swell
06 18	2	476	578	09	8	11	10	96	40	8	158	05	8	6	5	0	0	2	14	00	05	11	050	E S E 3	S S W 1
06 18	2	477	579	12	8	13	10	93	20	4	172	05	8	6	5	0	0	2	14	51	05	13	056	S E 2	W S W 1
06 18	2	477	579	15	9	12	09	94	51	5	171	05	9	×	0	×	×	8	01	00	05	13	052	E S E 3	S E 1
06 18	2	477	579	18	8	12	10	96	20	5	179	06	8	6	5	0	0	3	03	01	05	11	050	E S E 3	S E 1
06 18	2	477	580	21	8	13	11	96	02	2	187	06	8	6	5	0	0	3	08	01	05	13	054	S E 3	East 1
06 19	2	479	585	00	8	11	10	96	02	2	200	05	8	6	5	0	0	2	13	51	05	11	050	E S E 2	East 1
06 19	2	480	586	03	8	11	11	97	02	2	199	05	8	6	5	0	0	5	01	51	04	11	055	E S E 3	E S E 1
06 19	2	482	591	06	8	11	10	98	02	2	207	06	8	6	5	0	0	2	08	00	05	11	054	E S E 3	East 1
06 19	2	483	595	09	8	12	16	98	02	2	204	05	8	6	6	0	0	8	03	51	05	11	055	E S E 4	East 1
06 19	2	484	596	12	8	12	15	97	02	2	197	05	8	6	5	0	0	7	07	51	05	12	055	E S E 4	East 1
06 19	2	484	596	15	9	10	07	96	51	2	186	06	9	×	0	×	×	7	11	00	05	10	054	E S E 3	East 1
06 19	2	484	596	18	8	12	18	98	02	5	179	05	8	6	5	0	0	7	07	51	05	12	055	E S E 5	S E 1
06 19	2	484	596	21	8	10	18	98	02	2	173	05	8	6	5	0	0	7	06	51	04	10	054	East 5	E S E 1
06 20	2	485	600	00	8	09	20	98	02	2	167	06	8	6	5	0	0	6	06	02	05	09	052	East 5	East 2
06 20	2	487	603	03	6	09	18	98	01	2	166	06	5	5	4	2	1	6	01	02	05	09	048	East 5	E N E 2
06 20	2	488	606	06	8	10	18	97	03	2	164	05	8	6	4	0	0	6	02	50	05	10	054	East 5	East 2
06 20	2	489	610	09	8	10	20	97	02	2	174	06	8	6	4	0	0	2	10	00	05	10	054	East 5	East 2
06 20	2	490	613	12	8	10	21	97	02	2	184	05	8	6	5	0	0	2	10	50	05	10	055	East 5	East 2
06 20	2	492	617	15	8	09	21	97	02	2	181	05	8	6	5	0	0	5	03	50	05	09	053	East 5	East 3
06 20	2	493	621	18	7	07	21	97	01	2	182	06	7	5	5	2	0	0	01	01	05	03	052	E N E 5	East 3
06 20	2	495	625	21	8	07	23	96	02	5	199	05	8	6	4	0	0	3	17	02	05	08	042	E N E 5	East 2
06 21	2	496	627	00	7	07	21	98	02	2	193	06	7	6	5	0	0	7	06	00	05	07	055	E N E 5	E N E 3
06 21	2	498	628	03	8	05	20	96	03	2	193	06	8	6	5	0	0	5	00	01	06	05	057	N E 5	N E 3
06 21	2	500	633	06	7	05	21	97	02	2	188	06	7	6	5	2	0	6	05	01	05	05	057	N E 5	E N E 3
06 21	2	501	639	09	8	05	15	96	03	2	193	06	8	6	5	0	0	0	05	00	05	05	057	N E 4	N E 3
06 21	2	502	643	12	8	05	15	95	02	2	188	06	8	6	5	0	0	8	05	00	05	05	056	N E 4	N E 3
06 21	2	505	648	15	8	05	14	96	02	2	177	06	8	6	5	0	0	7	11	00	05	05	056	N E 4	N E 3
06 21	2	504	650	18	8	07	13	94	45	2	171	06	8	6	5	0	0	7	06	00	06	04	057	N E 4	E N E 2
06 21	2	506	655	21	8	04	16	93	47	6	176	06	8	6	4	0	0	3	05	50	06	05	058	N E 4	N E 2

Table 2. (Continued)

Y'Y'		Q	$L_1L_aL_a$	$L_aL_aL_a$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$	Sea		Swell	
06	22	2	508	660	00	8	05	16	96	02	2	176	03	8	6	5	0	0	4	00	01	06	05	052	NE	4	NNE	2
06	22	2	509	661	03	8	02	10	96	02	2	162	06	8	6	5	0	0	7	14	00	06	02	056	NNE	3	NE	2
06	22	2	510	667	06	8	04	10	97	02	2	148	06	8	6	4	0	0	7	14	51	05	04	059	NE	3	NE	2
06	22	2	512	671	09	9	03	09	93	52	2	132	06	9	×	0	×	×	7	16	51	06	03	058	NNE	3	NE	1
06	22	2	512	671	12	9	03	06	95	40	2	119	06	9	×	0	×	×	6	13	51	05	04	059	NE	2	NE	1
06	22	2	512	671	15	8	05	07	95	03	4	109	03	8	6	4	0	0	7	10	50	05	05	056	NE	2	NE	1
06	22	2	512	671	18	8	04	10	91	45	2	100	03	8	6	4	0	0	7	09	00	06	04	059	NE	3	NE	1
06	22	2	514	676	21	8	05	08	97	02	4	092	03	8	6	4	0	0	6	08	01	06	04	060	NE	3	NE	1
06	23	2	516	682	00	8	05	12	96	50	2	038	03	8	6	5	0	0	7	04	50	03	05	063	NE	3	NE	2
06	23	2	518	688	03	8	05	13	96	50	5	078	07	8	6	4	0	0	7	10	02	03	05	056	NE	4	NE	2
06	23	2	520	693	06	8	05	10	96	61	5	073	07	8	6	4	0	0	7	05	02	06	05	056	NE	3	NE	1
06	23	2	521	696	09	8	05	13	97	50	5	063	06	8	6	4	0	0	7	10	51	03	05	063	NE	3	NE	1
06	23	2	521	696	12	9	05	10	96	61	6	051	03	9	×	0	×	×	7	12	01	05	05	053	NE	3	NE	1
06	23	2	521	696	15	8	05	11	96	61	6	039	03	8	6	4	0	0	7	12	51	06	05	062	NE	4	NE	2
06	23	2	521	696	18	8	05	20	96	58	6	026	03	8	6	4	0	0	7	13	52	06	05	063	NE	5	East	3
06	23	2	522	698	21	8	05	20	96	58	5	014	05	8	6	5	0	0	7	12	52	05	05	063	NE	5	NE	3
06	24	2	523	701	00	8	05	20	95	63	6	007	06	8	6	5	0	0	7	07	52	05	05	065	NE	5	NE	3
06	24	2	524	706	03	8	05	20	96	21	6	997	06	8	6	4	0	0	7	10	50	05	05	060	NE	5	NE	3
06	24	2	526	711	06	8	05	20	96	06	2	987	06	8	7	4	0	0	7	10	01	06	05	058	NE	5	NE	3
06	24	2	527	715	09	8	05	20	95	63	6	986	06	8	7	4	0	0	6	01	00	06	06	058	NE	6	NE	3
06	24	2	528	717	12	8	05	25	96	21	6	990	06	8	6	5	0	0	3	04	01	06	05	054	NE	6	NE	3
06	24	2	528	715	15	8	06	24	96	21	2	988	06	8	7	4	0	0	6	02	01	06	06	057	ENE	6	NE	3
06	24	2	527	713	18	8	06	24	96	63	6	991	06	8	7	4	0	0	3	03	00	06	06	058	ENE	6	NE	3
06	24	2	526	713	21	8	06	16	96	01	6	999	06	8	7	4	0	0	3	08	01	06	06	057	ENE	4	NE	3
06	25	2	527	715	00	8	05	22	96	21	2	012	06	8	7	4	0	0	2	13	02	06	05	047	NE	6	NE	4
06	25	2	529	718	03	8	06	20	96	02	2	012	06	8	6	4	0	0	4	00	50	06	05	058	NE	5	NE	2
06	25	2	527	718	06	8	04	17	96	03	2	014	06	8	6	5	0	0	1	02	01	06	06	058	NE	5	NE	2
06	25	2	723	718	09	8	04	03	96	03	2	023	06	8	6	5	0	0	2	09	00	05	04	054	NE	3	East	2
06	25	2	519	718	12	8	06	17	97	03	2	027	06	8	6	5	0	0	2	04	00	06	06	059	NE	4	ENE	3

Table 2. (Continued)

Y'Y'		Q	$L_1L_aL_a$	$L_oL_aL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_wT_w	T_dT_d	d_wd_w	$T_rT_rT_r$	Sea	Swell
06	25	2	517	718	15	8	05	17	96	02	2	028	06	8	6	5	0	0	2	01	00	06	05	059	NE 5	ENE 3
06	25	2	513	718	18	7	04	12	97	03	2	040	07	8	6	5	0	0	2	12	02	06	04	055	NE 4	ENE 3
06	25	2	508	718	21	8	05	14	96	40	2	053	07	8	6	5	0	0	2	13	00	00	05	066	NE 4	ENE 2
06	26	2	506	715	00	8	05	14	96	02	2	067	07	8	6	5	0	0	2	14	00	06	05	066	NE 4	ENE 2
06	26	2	503	714	03	8	04	10	95	40	2	071	07	8	6	4	0	0	2	04	01	07	05	068	NE 3	ENE 2
06	26	2	499	716	06	8	04	09	96	40	2	079	08	8	6	5	0	0	3	08	03	08	04	068	NE 3	ENE 1
06	26	2	495	718	09	8	04	05	96	02	2	092	07	8	6	5	0	0	1	13	50	07	05	068	NE 2	NE 1
06	26	2	495	718	12	8	03	02	95	02	2	106	07	8	6	5	0	0	2	14	00	07	03	069	NNE 1	NE 1
06	26	2	495	718	15	8	00	00	96	02	2	113	07	8	6	5	0	0	2	07	01	07	00	069	NNE 1	NE 1
06	26	2	494	718	18	8	04	03	96	02	2	123	07	8	6	5	0	0	2	10	00	07	04	068	NE 1	NE 1
06	26	2	489	718	21	8	05	02	96	02	2	136	07	8	5	5	0	0	2	13	00	07	05	069	NE 1	NE 1
06	27	2	485	718	00	7	11	03	97	01	2	148	08	7	5	5	3	0	2	12	00	07	11	077	ESE 1	NNE 1
06	27	2	483	717	03	7	04	01	97	02	2	154	09	6	6	6	3	0	1	06	00	08	13	086	SE 1	NE 1
06	27	2	486	723	06	8	14	01	96	02	2	160	07	8	6	6	0	0	2	06	50	07	14	075	SE 1	NE 1
06	27	2	488	723	09	8	00	00	96	02	2	170	07	8	8	5	0	0	0	10	51	06	04	075	NE 1	NE 1
06	27	2	488	729	12	8	14	01	97	02	2	170	07	8	6	5	0	0	4	00	51	06	14	076	SE 1	NE 1
06	27	2	488	729	15	8	12	03	97	02	2	170	07	8	6	5	0	0	4	00	51	07	12	074	ESE 2	ENE 1
06	27	2	489	729	18	8	12	06	96	02	2	172	07	8	8	5	0	0	3	02	51	06	12	075	ESE 2	ENE 1
06	27	2	492	734	21	8	12	01	96	02	2	180	07	8	8	5	0	0	2	08	51	06	12	074	ESE 1	ENE 1
06	28	2	494	738	00	8	12	04	98	02	2	186	07	8	6	5	0	0	2	06	01	07	12	075	SE 1	East 1
06	28	2	498	746	03	7	13	01	98	02	2	186	08	7	4	5	1	0	5	00	00	06	13	083	SE 1	East 1
06	28	2	501	752	06	7	11	05	98	03	2	183	07	7	4	5	0	0	8	03	51	06	11	080	ESE 1	East 1
06	28	2	503	756	09	8	11	04	98	02	2	184	06	8	6	5	0	0	8	01	52	06	11	080	ESE 2	ESE 1
06	28	2	503	756	12	8	11	05	98	02	2	177	07	8	6	5	0	0	7	07	52	06	11	075	East 1	NE 1
06	28	2	503	756	15	8	09	03	97	02	2	170	08	8	6	5	0	0	7	07	00	07	09	075	East 1	NE 1
06	28	2	503	756	18	9	07	04	91	45	2	161	08	9	×	0	×	×	7	09	00	07	07	077	ENE 2	NE 1
06	28	2	508	758	21	9	11	05	95	47	4	164	08	9	×	0	×	×	3	03	01	07	11	071	ESE 2	SW 1
06	29	2	506	760	00	7	11	05	97	11	4	163	08	7	6	5	0	0	5	01	50	08	11	083	ESE 2	ESE 1
06	29	2	510	759	03	8	07	05	96	28	2	159	03	4	6	6	1	0	6	04	01	03	07	074	ENE 2	00 0

Table 2. (Continued)

Y'Y'	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$	Sea	Swell
06 29	2	515	760	06	8	07	09	94	44	2	144	07	8	6	5	0	0	7	15	00	07	07	072	ENE 3	00 0
06 29	2	515	760	09	8	09	09	96	20	2	155	07	8	4	5	0	0	0	11	50	07	07	073	ENE 2	SE 1
06 29	2	514	767	12	2	11	10	97	01	2	148	07	2	6	5	0	0	7	07	00	07	11	067	ESE 3	00 0
06 29	2	513	773	15	7	07	15	98	03	1	132	07	6	9	4	2	0	7	16	51	06	07	075	ENE 4	SE 1
06 29	2	516	780	18	8	09	19	98	21	2	123	07	8	4	5	0	0	7	09	51	06	09	072	East 4	SE 2
06 29	2	511	786	21	8	07	15	97	02	2	117	07	8	6	5	0	0	7	06	01	07	07	066	ENE 4	ESE 3
06 30	2	511	789	00	8	05	18	95	05	2	100	08	8	6	5	0	0	7	17	01	07	09	072	NE 4	East 2
06 30	2	511	795	03	8	06	21	97	02	2	086	08	6	6	5	2	0	7	14	00	08	07	078	ENE 5	ESE 3
06 30	2	510	798	06	8	05	27	97	61	2	071	08	8	7	4	0	0	7	15	00	07	05	073	NE 6	NE 3
06 30	1	509	797	09	8	05	22	96	59	2	053	07	8	6	4	0	0	7	18	00	07	05	073	NE 6	NE 3
06 30	1	509	794	12	8	05	21	96	59	2	035	07	8	6	4	0	0	6	18	50	07	04	072	NE 6	ENE 3
06 30	1	508	795	15	8	02	22	96	61	6	012	07	8	7	4	0	0	7	23	51	07	02	074	NNE 6	ENE 3
06 30	1	507	796	18	8	02	22	96	58	6	003	07	8	7	3	0	0	7	09	50	07	03	070	NNE 6	ENE 3
06 30	1	506	797	21	8	02	18	96	58	5	001	07	8	7	4	0	0	6	02	00	07	03	069	NNE 5	NE 3
07 01	1	506	798	00	8	02	16	96	61	5	001	07	8	6	4	0	0	4	00	50	07	03	070	NNE 5	NE 3
07 01	2	510	792	03	8	02	20	96	02	2	001	07	8	6	4	0	0	4	00	01	07	02	068	NNE 5	NE 3
07 01	2	510	798	06	8	02	20	96	02	2	007	07	8	6	4	0	0	3	06	02	07	02	069	NNE 4	ENE 3
07 01	1	509	796	09	7	04	05	98	02	2	026	08	7	6	4	0	0	2	19	00	07	04	074	NE 2	ENE 2
07 01	1	501	792	12	7	02	02	97	03	2	031	07	7	6	4	0	0	2	05	50	07	03	076	NNE 1	NE 2
07 01	1	505	792	15	7	36	05	97	02	2	044	07	7	6	5	0	0	2	13	01	07	36	070	North 2	ENE 1
07 01	1	508	792	18	8	35	14	96	02	2	066	07	8	6	4	0	0	2	22	50	07	35	076	North 4	ENE 2
07 01	1	506	792	21	8	34	14	97	02	2	092	07	8	6	4	0	0	2	26	50	07	34	070	NNW 4	NNW 2
07 02	1	500	792	00	8	32	14	98	02	2	115	07	8	6	5	0	0	2	23	50	07	32	073	NW 4	NNW 2
07 02	1	495	792	03	8	31	20	96	02	2	144	07	8	6	5	0	0	2	29	51	07	31	076	NW 4	NNW 3
07 02	1	498	792	06	8	32	20	96	02	2	168	07	8	6	6	0	0	2	24	51	07	32	077	NW 5	NW 3
07 02	1	488	792	09	8	29	16	97	02	2	203	08	8	6	5	0	0	2	35	50	07	29	076	WNW 4	NW 3
07 02	1	484	792	12	7	29	18	97	01	2	227	07	8	6	5	0	0	2	24	51	06	29	076	WNW 5	NW 3
07 02	1	480	792	15	7	31	09	97	20	2	237	07	6	7	4	2	0	1	10	51	07	31	076	NW 3	NW 1
07 02	1	481	792	18	8	31	09	98	03	5	250	08	8	6	4	0	0	2	13	00	07	34	078	NW 3	NNW 2

Table 2. (Continued)

Y'Y'		Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_aT_a	d_wd_w	$T_tT_tT_t$	Sea		Swell	
07	02	1	484	784	21	6	28	12	96	01	2	259	09	6	6	5	0	0	2	09	02	08	31	076	NW	3	NNW	2
07	03	1	486	779	00	8	28	12	96	03	3	263	09	8	7	5	2	0	2	04	03	07	28	078	WNW	3	NW	2
07	03	1	489	774	03	8	29	15	96	03	2	254	09	6	7	4	0	0	8	09	02	07	29	081	WNW	4	WNW	2
07	03	1	492	768	06	8	29	15	97	03	2	241	08	8	6	4	0	0	6	13	01	06	29	080	WNW	3	WNW	2
07	03	1	495	765	09	8	29	15	96	02	2	257	08	8	6	4	0	0	1	16	50	06	29	077	WNW	3	NW	2
07	03	1	500	762	12	8	29	20	96	02	2	246	07	8	6	4	0	0	8	11	00	05	29	072	WNW	5	NW	3
07	03	1	503	760	15	8	29	20	97	02	2	239	07	8	6	5	0	0	7	07	51	06	27	074	West	4	WNW	2
07	03	1	505	759	18	8	29	16	97	02	2	239	07	8	5	5	0	0	0	00	50	06	29	074	WNW	4	West	3
07	03	1	510	759	21	8	27	11	97	02	2	237	08	8	6	5	0	0	7	02	02	07	27	074	West	3	West	2
07	04	1	513	760	00	8	27	11	96	02	2	233	08	6	6	5	2	0	6	04	00	07	27	079	West	3	West	2
07	04	1	510	756	03	8	26	19	97	02	2	239	08	8	6	5	0	0	3	06	50	07	26	079	WSW	4	SW	1
07	04	1	507	751	06	8	25	16	96	02	2	239	08	8	6	5	0	0	4	00	01	07	24	076	WSW	3	SW	1
07	04	1	504	747	09	8	23	09	96	02	2	244	08	8	6	5	0	0	2	05	00	08	23	078	SW	3	SW	1
07	04	1	499	741	12	8	23	12	96	02	2	246	08	8	6	5	0	0	1	02	01	08	23	078	SW	4	SW	1
07	04	1	497	737	15	8	22	10	96	02	2	246	08	8	6	5	0	0	4	00	00	08	22	083	SW	3	SW	1
07	04	1	493	732	18	8	22	10	96	61	2	254	08	8	6	5	0	0	1	08	50	08	23	082	SW	3	WSW	1
07	04	1	490	726	21	8	23	08	97	02	2	259	08	8	6	5	0	0	3	05	00	08	23	083	SW	3	SW	1
07	05	1	492	725	00	8	23	10	97	01	2	248	10	4	6	5	2	0	7	11	03	09	23	086	SW	3	SW	1
07	05	1	497	724	03	8	23	10	97	02	2	234	09	4	7	4	2	0	7	14	02	08	23	083	SW	3	SW	1
07	05	1	500	724	06	8	23	14	97	02	2	223	08	8	6	5	0	0	7	11	51	08	23	083	SW	4	West	2
07	05	1	500	724	09	8	23	07	95	50	2	219	08	8	6	4	0	0	8	04	50	08	23	079	SW	3	West	2
07	05	1	500	724	12	9	23	12	96	45	5	213	08	9	×	0	×	×	7	06	00	08	23	077	SW	4	West	2
07	05	1	499	723	15	9	23	10	95	50	5	210	08	9	×	0	×	×	8	03	00	08	23	077	SW	3	West	2
07	05	1	501	722	18	8	29	13	98	03	5	210	08	8	6	5	0	0	0	00	00	08	29	080	WNW	4	WNW	2
07	05	1	506	722	21	8	28	12	96	02	2	210	09	8	6	5	0	0	4	00	01	03	28	078	West	4	West	2
07	06	1	510	722	00	8	28	12	96	02	2	213	09	8	6	5	0	0	3	03	02	08	29	080	West	3	West	2
07	06	1	512	721	03	7	32	05	98	01	2	219	08	2	2	5	1	0	3	06	00	07	32	082	NW	2	West	1
07	06	1	517	720	06	8	29	04	98	03	2	216	09	7	8	5	3	0	6	03	01	08	29	088	WNW	2	West	1
07	06	1	518	720	09	8	27	03	96	02	2	217	07	8	5	5	0	0	3	01	01	07	27	060	West	1	West	1

Table 2. (Continued)

Y'Y'	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_fT_fT_f$	Sea	Swell
07 06	1	518	720	12	8	23	00	96	02	2	217	08	8	6	5	0	0	4	00	02	08	23	065	SW 0	West 1
07 06	1	518	720	15	8	23	02	97	02	2	212	08	8	6	5	0	0	6	05	02	07	23	065	SW 1	West 1
07 06	1	519	720	18	8	23	02	97	02	2	206	08	8	6	5	0	0	7	06	03	07	23	061	SW 1	West 1
07 06	1	523	722	21	9		00	92	45	4	206	06	9	×	0	×	×	5	00	01	06	00	056	00 0	00 0
07 07	1	529	721	00	8	13	05	97	02	2	201	07	8	6	5	0	0	7	05	51	07	00	077	SE 2	00 0
07 07	1	531	720	03	8	13	05	97	02	2	195	07	8	5	5	2	0	7	06	52	07	13	081	SE 2	00 0
07 07	1	536	719	06	8	09	05	98	03	2	194	03	8	5	5	2	0	7	01	00	07	09	078	East 2	West 1
07 07	1	538	720	09	8	11	05	97	02	2	197	08	7	1	5	2	0	1	03	51	07	14	082	SE 2	SW 1
07 07	1	538	720	12	8	09	10	97	02	2	190	08	6	5	4	1	0	7	07	00	08	09	079	East 3	00 0
07 07	1	538	720	15	8	09	10	97	02	2	183	09	5	5	5	1	0	7	07	02	08	09	077	East 3	ENE 1
07 07	1	537	722	18	8	09	08	97	03	2	188	08	6	5	6	2	0	3	05	01	08	09	079	East 3	ENE 1
07 07	1	537	730	21	8	07	09	97	02	2	190	08	4	6	5	2	0	2	02	01	08	07	078	ENE 3	ENE 1
07 08	1	538	738	00	8	07	09	97	02	2	195	10	8	6	5	0	0	1	05	03	09	07	078	ENE 3	ENE 1
07 08	1	538	747	03	8	07	07	99	02	2	199	09	6	5	5	1	0	2	04	03	08	07	074	ENE 3	ENE 1
07 08	1	537	755	06	8	07	10	96	03	3	197	09	5	5	5	3	0	8	05	02	09	07	078	ENE 3	ENE 1
07 08	1	537	760	09	8	07	08	96	60	2	191	03	8	6	5	0	0	5	06	01	07	07	072	ENE 3	East 1
07 08	1	537	767	12	8	10	08	96	02	2	190	03	8	6	5	0	0	7	01	01	08	10	075	East 3	East 1
07 08	1	538	775	15	8	13	10	96	61	6	173	03	8	7	4	0	0	7	17	01	08	13	074	SE 3	SE 1
07 08	1	538	784	18	8	11	11	96	21	6	170	08	8	6	4	0	0	7	03	01	08	11	072	ESE 3	ESE 1
07 08	1	538	792	21	8	12	08	96	61	2	164	08	8	6	4	0	0	7	06	02	08	12	072	ESE 3	East 1
07 09	1	536	792	00	8	12	09	96	02	2	158	03	8	6	4	0	0	7	06	02	08	12	073	East 3	ESE 1
07 09	1	532	792	03	8	11	09	96	60	2	141	03	8	7	4	0	0	7	17	02	08	11	070	SE 3	SE 1
07 09	1	528	792	06	8	07	07	96	61	5	121	07	2	6	4	2	0	7	20	01	07	07	066	ENE 3	ENE 2
07 09	1	529	792	09	8	09	08	95	50	5	110	03	8	6	4	0	0	7	11	03	08	09	064	East 3	ENE 1
07 09	1	529	792	12	8	09	10	95	50	5	090	07	8	6	4	0	0	7	20	01	07	09	064	East 3	South 1
07 09	1	529	792	15	8	07	06	93	43	5	059	07	8	6	5	0	0	7	31	02	06	07	060	ENE 2	East 1
07 09	1	528	791	18	8	08	08	95	51	5	035	08	8	6	5	0	0	7	24	03	08	03	064	ENE 3	East 1
07 09	1	523	792	21	8	08	05	96	50	5	020	03	8	6	5	0	0	7	15	03	07	03	060	East 2	ENE 1
07 10	1	520	792	00	8	11	03	96	50	5	988	07	8	6	5	0	0	7	32	02	07	08	060	ESE 3	ESE 1

Table 2. (Continued)

Y'Y'	Q	$L_AL_AL_A$	$L_OL_OL_O$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_ST_S	T_dT_d	d_Wd_W	$T_tT_tT_t$	Sea	Swell
07 10	1	522	799	03	9	07	05	93	45	5	968	07	9	×	0	×	×	7	20	01	07	07	060	ENE 2	ENE 1
07 10	2	522	799	06	8	09	05	93	44	5	940	06	8	6	4	0	0	7	28	02	06	07	047	ENE 2	ESE 1
07 10	2	524	793	09	8	34	05	96	20	4	946	07	8	6	4	0	0	3	06	01	07	34	069	NNW 2	ENE 1
07 10	2	525	786	12	8	31	08	95	28	5	946	07	8	6	5	0	0	4	00	51	07	31	075	NW 3	00 0
07 10	2	527	778	15	8	32	11	96	02	2	951	08	8	6	5	0	0	3	05	00	07	32	076	NW 4	NW 1
07 10	2	527	772	18	8	32	24	96	02	2	981	07	8	6	5	0	0	2	30	52	06	32	077	NW 6	NW 1
07 10	2	528	767	21	8	29	23	96	02	2	013	08	8	6	5	0	0	2	32	01	07	29	070	WNW 6	NW 3
07 11	2	528	762	00	8	29	21	96	02	2	044	08	8	7	4	0	0	2	31	01	07	29	073	WNW 5	NW 3
07 11	2	530	760	03	7	29	19	96	01	2	059	08	6	6	3	1	0	2	15	01	07	29	073	WNW 5	NW 3
07 11	2	530	755	06	7	29	12	98	03	1	079	08	7	1	4	0	0	2	20	02	07	29	072	WNW 4	NW 3
07 11	2	531	749	09	8	27	07	97	03	2	092	08	8	4	4	0	0	2	13	01	07	27	075	West 2	WNW 1
07 11	2	531	742	12	7	23	10	97	01	2	086	08	7	4	6	0	0	8	06	01	07	23	077	SW 3	NW 2
07 11	2	532	735	15	3	23	14	99	01	2	056	08	2	4	6	6	0	7	30	01	07	23	070	SW 3	SW 3
07 11	2	532	729	18	4	25	12	99	02	0	044	08	1	5	5	4	6	6	12	50	07	25	078	WSW 3	WSW 3
07 11	2	531	736	21	9	20	30	93	43	1	041	07	9	×	0	×	×	5	03	51	07	23	074	SW 6	WSW 3
07 12	2	531	729	00	2	19	17	98	02	0	052	09	2	4	6	0	0	2	11	02	07	20	082	SSW 5	SSW 5
07 12	2	531	728	03	7	25	14	97	03	1	044	10	5	1	4	6	5	7	08	03	07	24	078	SSW 4	SSW 3
07 12	2	531	729	06	7	20	24	98	03	1	044	09	7	7	4	7	0	5	00	01	08	20	082	SSW 6	WSW 3
07 12	2	531	731	09	4	20	13	98	01	1	056	08	2	5	5	5	4	2	12	03	06	27	067	SSW 4	West 1
07 12	2	531	731	12	1	29	06	98	02	1	064	08	1	0	6	3	0	3	08	02	07	29	071	WSW 3	WSW 1
07 12	2	531	726	15	8	25	07	96	60	2	080	08	8	7	4	0	0	2	16	01	27	25	073	WSW 3	West 2
07 12	2	529	721	18	8	29	09	95	02	2	100	08	8	6	4	0	0	2	20	00	08	23	078	WNW 2	SW 3
07 12	2	528	718	21	8	31	10	95	02	2	121	08	8	6	4	0	0	2	21	00	08	25	079	NW 3	WSW 2
07 13	2	527	712	00	8	32	12	96	02	2	153	08	8	6	5	0	0	2	32	00	08	32	076	NW 4	West 2
07 13	2	525	706	03	7	33	11	98	01	2	174	08	4	7	4	1	5	2	21	50	07	33	079	NNW 4	WNW 2
07 13	2	522	699	06	7	33	10	96	03	2	193	07	5	5	4	6	0	2	19	51	07	33	076	NNW 3	WNW 1
07 13	2	521	696	09	8	09	33	96	02	2	201	07	8	6	5	0	0	2	08	51	06	33	074	NNW 3	NW 1
07 13	2	521	696	12	9	23	03	91	47	2	206	05	9	×	0	×	×	3	05	55	05	23	076	SW 1	NNW 1
07 13	2	521	696	15	8	23	01	94	41	2	204	07	8	6	4	0	0	5	02	51	06	23	075	SW 2	NNW 1

Table 2. (Continued)

Y′Y′		Q	$L_aL_aL_a$	$L_hL_hL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_rT_rT_t$	Sea		Swell	
07	13	2	521	695	18	9	25	10	94	46	2	200	07	4	6	4	×	×	6	04	51	07	25	077	WSW	3	WSW	1
07	13	2	519	688	21	8	24	10	98	03	1	206	07	8	6	5	0	0	3	06	51	07	24	075	SSW	3	SW	1
07	14	2	519	685	00	8	20	11	97	02	2	206	08	8	6	5	0	0	4	00	00	08	20	078	SSW	3	SW	2
07	14	2	518	684	03	8	21	11	97	02	2	201	08	3	6	5	1	0	8	05	50	07	21	078	SSW	4	SW	1
07	14	2	515	678	06	9	21	13	94	45	2	193	08	9	×	0	×	×	6	08	00	08	21	078	SSW	4	SW	3
07	14	2	512	673	09	9	20	12	91	45	4	199	08	9	×	0	×	×	1	06	01	08	20	074	SSW	4	SSW	1
07	14	2	511	670	12	9	21	12	92	45	4	197	07	9	×	0	×	×	8	02	50	07	21	072	SSW	4	SSW	1
07	14	2	509	663	15	2	21	11	97	01	4	190	07	0	0	6	0	5	7	07	01	07	21	069	SSW	4	SSW	1
07	14	2	506	657	18	1	23	09	97	02	1	191	08	1	0	6	1	0	3	01	01	07	23	071	SW	3	SW	1
07	14	2	504	650	21	1	23	07	98	02	0	198	08	0	0	6	1	0	1	07	01	07	23	071	SW	3	SW	1
07	15	2	503	648	00	1	23	07	98	02	0	199	08	0	0	7	1	0	3	01	01	08	23	074	SW	3	SW	1
07	15	2	501	644	03	0	25	13	95	44	0	203	07	0	0	9	0	0	2	04	00	07	23	072	WSW	4	West	1
07	15	2	499	638	06	1	27	10	97	01	0	203	08	1	0	7	0	1	4	00	01	07	27	075	West	3	West	1
07	15	2	497	631	09	0	25	09	93	46	0	210	07	0	0	9	0	0	2	07	51	07	25	073	WSW	3	West	1
07	15	2	497	631	12	1	24	09	97	02	0	204	09	1	2	5	0	0	7	06	03	08	24	071	WSW	3	West	1
07	15	2	497	631	15	0	21	04	92	44	0	204	07	0	0	9	0	0	0	00	51	07	21	070	SSW	2	West	1
07	15	2	497	631	18	1	25	09	98	28	4	199	08	1	6	6	1	1	6	05	01	08	25	072	WSW	3	WNW	1
07	16	2	495	626	21	1	25	04	99	03	0	201	08	1	6	5	1	1	1	02	01	08	25	072	WSW	2	West	1
07	16	2	492	618	00	2	23	04	99	02	0	206	08	2	4	6	0	1	1	05	00	08	23	083	SW	2	West	1
07	16	2	491	615	03	3	18	04	95	42	0	206	09	3	0	5	2	0	5	00	01	09	18	084	South	2	00	0
07	16	2	489	608	06	7	14	04	98	01	2	194	09	7	5	4	6	8	8	12	02	09	14	083	SE	2	South	1
07	16	2	487	605	09	7	14	04	95	28	2	188	09	6	6	5	6	0	7	06	01	09	14	085	SE	2	SSE	1
07	16	2	485	599	12	9	12	04	92	47	2	181	08	9	×	0	×	×	7	07	00	08	12	075	ESE	2	SSE	1
07	16	2	483	594	15	9	11	05	93	45	4	168	10	9	×	0	×	×	7	13	03	09	11	080	ESE	2	South	1
07	16	2	480	586	18	9	10	12	93	45	4	155	10	9	×	0	×	×	7	13	02	09	10	083	East	3	South	2
07	16	2	479	583	21	9	09	15	93	45	4	148	09	9	×	0	×	×	6	07	03	09	09	079	East	4	ESE	1
07	17	2	476	577	00	9	11	10	92	45	4	148	10	9	×	0	×	×	5	00	04	10	11	082	ESE	3	SSE	1
07	17	2	474	571	03	8	09	09	95	21	6	133	10	8	6	3	0	0	7	15	04	10	13	077	East	3	SE	1
07	17	2	471	565	06	9	08	07	93	45	5	120	10	9	×	0	×	×	7	13	03	09	11	080	East	3	ESE	1

Table 2. (Continued)

Y'Y'	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$	Sea	Swell
07 17	2	468	559	09	9	03	06	92	45	4	117	09	9	×	0	×	×	6	03	01	09	08	085	East 2	East 1
07 17	2	466	554	12	9	04	01	91	45	4	127	09	9	×	0	×	×	2	10	01	09	04	085	NE 1	S S E 1
07 17	2	464	548	15	2	11	01	93	44	4	131	09	0	0	6	0	8	1	04	01	08	11	080	S S E 1	S S E 1
07 17	2	461	542	18	5	18	01	96	44	4	132	08	3	5	6	9	0	3	01	04	08	18	057	South 1	E S E 1
07 17	2	458	536	21	9	07	01	92	47	4	136	10	9	×	0	×	×	3	04	00	09	07	094	E N E 1	S E 1
07 18	2	456	530	00	9	03	06	92	45	4	134	10	9	×	0	×	×	6	02	01	10	03	099	N N E 2	S S E 1
07 18	2	453	524	03	8	03	06	96	28	4	126	10	8	6	5	0	0	7	08	00	10	03	100	N N E 2	00 0
07 18	2	450	517	06	8	36	07	96	60	2	120	10	4	6	5	2	0	5	06	50	10	31	100	North 3	E S E 1
07 18	2	447	511	09	7	33	06	92	44	2	119	10	6	6	3	9	1	8	01	01	10	33	092	N N W 2	E S E 1
07 18	2	445	504	12	9	32	06	91	47	4	137	10	9	×	0	×	×	3	18	00	10	32	101	NW 2	00 0
07 18	2	443	500	15	9	25	06	91	44	4	139	11	9	×	0	×	×	1	02	51	11	25	110	W S W 2	North 1
07 18	2	440	494	18	7	19	04	98	02	2	139	12	4	6	5	2	0	0	00	01	12	19	115	South 2	00 0
07 18	2	437	488	21	8	17	08	97	03	2	144	12	7	6	5	2	0	1	05	00	11	17	116	South 3	00 0
07 19	2	435	483	00	9	14	09	91	47	2	137	13	9	×	0	×	×	8	07	06	12	14	098	S E 3	South 1
07 19	2	432	477	03	8	14	10	95	42	2	128	15	8	6	5	0	0	7	09	05	14	14	118	S E 3	South 1
07 19	2	430	472	06	9	16	08	93	45	4	119	15	9	×	0	×	×	8	09	03	15	16	134	S S E 3	South 1
07 19	2	427	466	09	9	15	10	92	47	6	103	15	9	×	0	×	×	7	16	03	15	15	131	S S E 3	S E 1
07 19	2	425	461	12	8	14	11	95	63	6	105	15	8	0	4	2	0	1	02	03	15	14	133	S E 3	S E 1
07 19	2	422	455	15	8	16	09	95	63	6	093	15	8	0	4	2	0	7	12	02	15	16	141	S S E 2	S E 1
07 19	2	420	450	18	9	16	03	92	47	6	081	15	9	×	0	×	×	7	12	07	15	16	117	S S E 1	South 1
07 19	2	417	444	21	8	02	16	95	61	4	070	14	8	7	4	0	0	7	11	02	14	02	129	N N E 4	S E 1
07 20	2	416	447	00	8	36	18	94	45	6	061	15	8	0	4	2	0	6	09	51	15	18	151	North 5	North 1

8. Data on Temperature and Salinity, and Computed Data on Dynamic Depth

(温度塩分記録及びダイナミックデプス計算値)

Double titration for chlorinity determination, calculation of depths, interpolation of data, and computation of dynamic depth were made by H. Koto.

Determination of dissolved oxygen and calculation of saturation percentage of it were made by K. Karohji.

Code of the World Meteorological Organization

dd: Wind direction

ff: Wind speed

ww: Present weather

TTT: Air temperature

Abbreviations

Tr: Transparency of water in meters as represented by Secchi's disc readi ng

C: Colour of Sea

X: No observation

Table 3. Data on temperature, salinity and dynamic depth on 1957 cruise to Aleutian waters

Station Os 1 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0039–0305	19	6	1957	48°00′ N	158°35′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
12	08	02	042	SE 3	×	×	10

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		5.3	18.18	32.84	7.44	103
10	8	5.26	18.19	32.86	7.35	102
20	〃	4.05	18.23	32.94	7.70	104
30	〃	2.26	18.23	32.94	7.98	108
50	〃	1.95	18.25	32.97	7.67	99
71	19	1.88	18.26	32.99	7.36	93
95	〃	1.19	18.30	33.06	6.45	82
142	〃	1.28	18.40	33.24	6.33	80
189	〃	2.07	18.56	33.53	4.59	60
260	31	3.31	18.73	33.84	2.02	27
349	〃	3.50	18.81	33.98	0.81	11
435	〃	3.43	18.89	34.13	0.59	8
528	〃	3.24	18.93	34.20	0.57	8
709	〃	3.00	19.00	34.33	0.63	8
892	〃	2.71	19.04	34.40	0.63	8
1081	〃	2.55	19.07	34.45	0.84	11
1373	〃	2.20	19.10	34.51	1.09	14

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	5.3	18.18	32.84	25.96	206	
10	5.26	18.19	32.86	25.98	204	0.021
20	4.05	18.23	32.94	26.16	187	0.040
30	2.26	18.23	32.94	26.33	171	0.058
50	1.95	18.25	32.97	26.38	166	0.092
75	1.83	18.27	33.01	26.41	163	0.133
100	1.16	18.32	33.10	26.53	152	0.172
150	1.40	18.43	33.30	26.68	137	0.245
200	2.30	18.61	33.62	26.97	110	0.307
300	3.43	18.77	33.91	27.01	106	0.416
400	3.46	18.86	34.07	27.12	96	0.520
500	3.31	18.92	34.18	27.22	86	0.614
600	3.10	18.96	34.25	27.31	78	0.700
800	2.88	19.02	34.36	27.41	68	0.855
1000	2.60	19.06	34.43	27.49	61	0.994
1200	2.41	19.08	34.47	27.54	56	1.122

Station Os 2 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0330–0459	20	6	1957	48°45′ N	160°33′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
09	18	01	058	E 5	E 2	4	14

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		5.2	18.20	32.88	7.57	105
10	19	5.31	18.19	32.86	7.40	103
19	〃	4.38	18.20	32.88	7.56	103
28	〃	3.03	18.22	32.92	7.75	102
47	〃	2.55	18.25	32.97	7.69	100
57	40	2.34	18.25	32.97	7.75	100
77	〃	2.20	18.25	32.97	7.57	98
119	〃	1.56	18.40	33.24	6.00	77
164	〃	2.64	18.62	33.64	3.19	42
196	54	3.09	18.70	33.78	2.77	38
248	〃	3.38	18.79	33.95	1.11	15
312	〃	3.40	18.84	34.04	1.04	14
374	〃	3.34	18.88	34.11	0.68	9
503	〃	3.20	18.90	34.14	0.78	10
643	〃	3.07	18.95	34.23	0.63	8
776	〃	2.87	19.00	34.33	0.61	8
1022	〃	2.50	19.07	34.45	0.68	9

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	5.2	18.20	32.88	25.99	203	
10	5.31	18.19	32.86	25.97	205	0.020
20	4.30	18.20	32.88	26.07	193	0.040
30	3.01	18.22	32.92	26.24	179	0.059
50	2.51	18.25	32.97	26.33	171	0.094
75	2.23	18.25	32.97	26.36	168	0.136
100	1.78	18.29	33.04	26.45	159	0.177
150	1.80	18.57	33.55	26.84	122	0.248
200	3.12	18.71	33.80	26.94	113	0.307
300	3.41	18.83	34.02	27.08	99	0.415
400	3.31	18.89	34.13	27.18	90	0.512
500	3.21	18.90	34.14	27.21	87	0.604
600	3.10	18.93	34.20	27.26	82	0.692
800	2.82	19.01	34.34	27.40	69	0.852
1000	2.52	19.07	34.45	27.51	59	0.990

Table 3. (Continued)

Station Os 3 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2210–0015	20	6	1957	49°45′ N	162°45′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
07	21	02	054	ENE 5	E 3	3	13

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		5.0	18.22	32.92	8.58	112
10	16	5.06	18.24	32.95	8.60	112
19	〃	5.04	18.25	32.97	8.60	112
29	〃	3.97	18.25	32.97		
48	〃	3.06	18.27	33.01	7.37	98
65	30	2.98	18.29	33.04	7.34	97
87	〃	1.84	18.29	33.04	7.48	96
130	〃	3.25	18.53	33.48	4.05	54
173	〃	3.33	18.60	33.60	4.31	58
208	47	3.38	18.72	33.82	1.99	27
280	〃	3.55	18.75	33.87	0.97	13
362	〃	3.38	18.82	34.00		
441	〃	3.38	18.90	34.14		
600	〃	3.20	18.95	34.23	0.51	7
780	〃	3.01	19.02	34.36	0.52	7
977	〃	2.77	19.04	34.40	0.58	8
1266	〃	2.34	19.07	34.45	0.50	7

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	5.0	18.22	32.92
10	5.06	18.24	32.95
20	5.03	18.25	32.97
30	3.93	18.25	32.97
50	3.05	18.27	33.01
75	2.70	18.29	33.04
100	1.80	18.30	33.06
150	3.30	18.56	33.53
200	3.37	18.71	33.80
300	3.52	18.76	33.89
400	3.38	18.86	34.07
500	3.31	18.92	34.18
600	3.20	18.95	34.23
800	2.99	19.02	34.36
1000	2.82	19.04	34.40
1200	2.43	19.06	34.43

Computed

σ_t	$10^5\triangle st$	$\triangle D$
26.05	197	
26.07	195	0.020
26.09	193	0.039
26.20	183	0.058
26.32	172	0.093
26.38	166	0.135
26.46	158	0.176
26.71	135	0.249
26.92	115	0.312
26.97	110	0.426
27.13	95	0.526
27.23	85	0.619
27.28	80	0.707
27.40	69	0.867
27.44	65	1.013
27.51	59	1.150

Station Os 4 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1600–1801	21	6	1957	50°20′ N	164°41′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
07	13	45	056	NE 4	ENE 2	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		5.4	18.26	32.99	7.15	100
10	14	5.52	18.26	32.99	7.10	100
19	〃	5.45	18.26	32.99	7.18	100
29	〃	3.60	18.28	33.03	7.50	100
49	〃	3.38	18.33	33.12	7.23	96
67	26	3.23	18.34	33.13	7.29	97
90	〃	2.50	18.34	33.13	7.09	93
137	〃	4.07	18.57	33.55	3.50	48
185	〃	4.10	18.59	33.58	2.90	40
249	35	3.94	18.68	33.75	2.32	31
339	〃	3.86	18.74	33.86	1.06	14
430	〃	3.75	18.81	33.98	0.79	11
521	〃	3.56	18.84	34.04	0.61	8
708	〃	3.30	18.97	34.27	0.64	9
897	〃	3.01	19.01	34.34	0.62	8
1086	〃	2.76	19.02	34.36	0.55	7
1371	〃	2.36	19.07	34.45	0.88	12

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	5.4	18.26	32.99
10	5.52	18.26	32.99
20	5.43	18.26	32.99
30	3.59	18.28	33.03
50	3.37	18.33	33.12
75	3.03	18.34	33.13
100	2.47	18.35	33.15
150	4.12	18.58	33.57
200	4.06	18.60	33.60
300	3.87	18.72	33.82
400	3.78	18.79	33.95
500	3.60	18.83	34.02
600	3.43	18.89	34.13
800	3.16	19.00	34.33
1000	2.88	19.01	34.34
1200	2.60	19.04	34.40

Computed

σ_t	$10^5\triangle st$	$\triangle D$
26.06	196	
26.04	198	0.020
26.05	197	0.039
26.28	175	0.059
26.37	167	0.093
26.42	162	0.135
26.48	156	0.174
26.65	140	0.249
26.69	136	0.319
26.88	118	0.448
26.99	108	0.564
27.07	100	0.672
27.17	91	0.771
27.35	74	0.945
27.40	69	1.098
27.48	62	1.241

Table 3. (Continued)

Station Os 5 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0940–1109	22	6	1957	51°14′ N	167°16′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
03	07	40	054	NE 2	NE 1	4	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		5.6	18.24	32.95	7.13	100
10	8	5.72	18.24	32.95	7.29	102
20	〃	4.65	18.24	32.95	7.31	100
30	〃	4.37	18.25	32.97	7.18	98
50	〃	4.12	18.26	32.99	7.13	97
73	14	3.44	18.28	33.03	7.12	95
97	〃	2.83	18.36	33.17	6.26	84
146	〃	3.25	18.69	33.77	2.67	36
194	〃	3.28	18.74	33.86	1.79	24
280	24	3.42	18.80	33.96	0.92	12
374	〃	3.44	18.85	34.05	0.72	10
466	〃	3.41	18.90	34.14		
558	〃	3.18	18.95	34.23	0.96	13
751	〃	2.94	19.00	34.33	0.71	9
937	〃	2.70	19.03	34.38	0.85	11
1130	〃	2.51	19.05	34.42	1.03	13
1413	〃	2.21	19.10	34.51		

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	5.6	18.24	32.95	26.01	201	
10	5.72	18.24	32.95	25.99	203	0.020
20	4.65	18.24	32.95	26.11	191	0.040
30	4.37	18.25	32.97	26.14	189	0.059
50	4.12	18.26	32.99	26.20	183	0.096
75	3.38	18.28	33.03	26.30	173	0.141
100	2.81	18.36	33.17	26.47	157	0.182
150	3.26	18.70	33.78	26.92	115	0.251
200	3.29	18.75	33.87	26.98	109	0.307
300	3.43	18.81	33.98	27.05	102	0.414
400	3.43	18.87	34.09	27.14	94	0.515
500	3.37	18.92	34.18	27.22	86	0.608
600	3.10	18.97	34.27	27.32	77	0.694
800	2.88	19.01	34.34	27.40	69	0.849
1000	2.64	19.04	34.40	27.46	63	0.992
1200	2.44	19.06	34.43	27.50	60	1.127
1500	(2.13)	(19.11	(34.52)	(27.61)	(49)	(1.310)

Station Os 6 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0720–0910	23	6	1957	52°04′ N	169°35′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
05	13	50	058	NE 3	NE 1	5	5

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		6.2	18.22	32.92	7.47	106
10	11	6.36	18.24	32.95	7.42	105
20	〃	6.34	18.24	32.95	7.45	106
30	〃	5.91	18.24	32.95	7.42	104
49	〃	4.54	18.30	33.06	7.26	99
73	14	3.94	18.32	33.10	6.97	94
97	〃	3.39	18.38	33.21	6.97	93
146	〃	4.10	18.51	33.44	4.15	56
194	〃	4.08	18.62	33.64	3.21	44
291	〃	3.69	18.67	33.73	2.15	29
387	〃	3.62	18.79	33.95	1.19	16
484	〃	3.52	18.84	34.04	0.98	13
581	〃	3.41	18.89	34.13	0.79	11
778	〃	3.19	18.93	34.20	0.78	10
971	〃	2.95	19.01	34.34	0.63	8
1168	〃	2.67	19.03	34.38	0.67	9
1462	〃	2.30	19.08	34.47	0.84	11

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	6.2	18.22	32.92	25.91	210	
10	6.36	18.24	32.95	25.91	210	0.021
20	6.34	18.24	32.95	25.92	210	0.042
30	5.91	18.24	32.95	25.98	204	0.063
50	4.53	18.30	33.06	26.21	182	0.101
75	3.89	18.32	33.10	26.31	172	0.146
100	3.37	18.39	33.22	26.46	158	0.187
150	4.12	18.51	33.44	26.55	150	0.265
200	4.07	18.63	33.66	26.73	133	0.336
300	3.68	18.68	33.75	26.84	122	0.465
400	3.61	18.80	33.96	27.02	105	0.581
500	3.51	18.85	34.05	27.10	97	0.685
600	3.40	18.90	34.14	27.19	89	0.782
800	3.17	18.94	34.22	27.27	81	0.962
1000	2.92	19.02	34.36	27.41	68	1.124
1200	2.62	19.04	34.40	27.46	63	1.269
1500	(2.25)	19.09	(34.49)	(27.56	(51)	1.467

Table 3. (Continued)

Station Os 7 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0230–0440	25	6	1957	52°55′ N	171°50′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
06	20	02	058	NE 5	ENE 4	6	6

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		6.0	18.25	32.97	8.32	117
10	15	5.97	18.26	32.99	7.31	103
19	〃	5.94	18.26	32.99	7.39	104
29	〃	5.93	18.26	32.99	7.31	103
49	〃	5.84	18.26	32.99	7.29	103
58	38	4.12	18.30	33.06	6.97	95
79	〃	3.70	18.34	33.13	6.97	93
118	〃	3.54	18.40	33.24	6.01	80
158	〃	3.80	18.56	33.53	3.88	52
187	55	3.73	18.59	33.58	3.41	46
260	〃	3.56	18.70	33.78	2.05	28
359	50	3.59	18.73	33.84	0.62	8
445	〃	3.50	18.84	34.04	0.82	11
609	〃	3.37	18.89	34.13	0.85	11
789	〃	3.18	18.95	34.23	0.60	8
965	〃	2.92	18.99	34.31	0.66	9
1242	〃	2.56	19.05	34.42	0.66	9

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	6.0	18.25	32.97
10	5.97	18.26	32.99
20	5.94	18.26	32.99
30	5.93	18.26	32.99
50	5.83	18.26	32.99
75	3.78	18.34	33.13
100	3.60	18.37	33.19
150	3.78	18.54	33.49
200	3.70	18.61	33.62
300	3.57	18.72	33.82
400	3.56	18.77	33.91
500	3.47	18.86	34.07
600	3.36	18.89	34.13
800	3.17	18.96	34.25
1000	2.90	19.00	34.33
1200	2.63	19.04	34.40

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.98	204	
26.00	202	0.020
26.00	202	0.041
26.01	201	0.061
26.02	200	0.101
26.34	170	0.147
26.41	163	0.189
26.63	142	0.266
26.74	132	0.335
26.91	116	0.460
26.98	109	0.575
27.12	96	0.681
27.18	90	0.777
27.30	79	0.955
27.38	71	1.117
27.46	63	1.265

Station Os 8 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1305–1521	25	6	1957	51°46′ N	171°30′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
05	17	02	059	NE 4	ENE 3	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O (%)
0		5.8	18.32	33.10	7.29	103
10	18	5.90	18.32	33.10	7.26	102
19	〃	5.89	18.33	33.12		
29	〃	5.77	18.33	33.12	7.18	101
48	〃	3.98	18.33	33.12	7.04	95
54	44	3.73	18.33	33.12	7.13	96
72	〃	3.37	18.34	33.13	6.88	92
108	〃	3.29	18.37	33.19	6.75	90
144	〃	3.85	18.47	33.37	5.29	71
210	47	4.00	18.59	33.58	3.73	36
287	〃	3.81	18.66	33.71	2.45	33
367	〃	3.72	18.75	33.87	2.07	28
442	〃	3.59	18.82	34.00	0.95	13
598	〃	3.49	18.89	34.13	0.82	11
750	〃	3.32	18.94	34.22	0.66	9
911	〃	3.13	18.98	34.29	0.73	10
1165	〃	2.75	19.03	34.38	0.67	9

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	5.8	18.32	33.10
10	5.90	18.32	33.10
20	5.88	18.33	33.12
30	5.75	18.33	33.12
50	3.90	18.33	33.12
75	3.33	18.34	33.13
100	3.27	18.36	33.17
150	3.90	18.48	33.39
200	3.99	18.57	33.55
300	3.79	18.68	33.75
400	3.66	18.78	33.93
500	3.56	18.85	34.05
600	3.49	18.89	34.13
800	3.28	18.96	34.25
1000	3.02	19.00	34.33
1200	2.70	19.04	34.40

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
26.10	192	
26.09	193	0.019
26.11	191	0.039
26.12	191	0.058
26.32	172	0.094
26.39	165	0.136
26.42	160	0.177
26.53	152	0.256
26.66	139	0.329
26.83	123	0.462
26.98	109	0.580
27.11	97	0.686
27.17	91	0.784
27.28	80	0.965
27.37	72	1.130
27.45	64	1.280

Table 3. (Continued)

Station Os 9 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2235–0045	25	6	1957	50°37′ N	171°12′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
05	14	02	065	NE 3	ENE 2	4	12

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		6.5	18.12	32.74	6.97	99
10	12	6.50	18.13	32.75	6.93	100
19	〃	6.14	18.18	32.84	7.17	102
29	〃	5.30	18.20	32.88	7.08	99
49	〃	4.13	18.24	32.95	6.81	93
69	23	3.78	18.28	33.03	6.66	89
92	〃	3.98	18.44	33.31	5.14	69
138	〃	4.13	18.65	33.69	2.63	36
184	18	4.18	18.69	33.77	2.47	34
258	30	3.80	18.79	33.95	1.04	14
345	〃	3.68	18.80	33.96	0.92	12
432	〃	3.67	18.89	34.13	0.45	6
538	〃	3.38	18.95	34.23	0.65	9
717	〃	3.13	18.99	34.31	0.85	11
900	〃	2.97	19.01	34.34	0.80	11
1079	〃	2.72	19.03	34.38	0.83	11
1362	〃	2.36	19.06	34.43	0.67	9

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^3 \triangle st$	$\triangle D$
0	6.5	18.12	32.74	25.73	228	
10	6.50	18.13	32.75	25.74	227	0.023
20	6.10	18.19	32.86	25.88	213	0.045
30	5.15	18.20	32.88	26.00	202	0.066
50	4.10	18.24	32.95	26.17	186	0.104
75	3.77	18.31	33.08	26.31	172	0.149
100	4.02	18.62	33.64	26.72	134	0.188
150	4.16	18.66	33.71	26.76	130	0.254
200	4.08	18.70	33.78	26.83	123	0.318
300	3.74	18.80	33.93	27.01	106	0.434
400	3.67	18.85	34.05	27.08	99	0.540
500	3.50	18.94	34.22	27.23	85	0.596
600	3.27	18.97	34.27	27.30	79	0.682
800	3.09	19.00	34.33	27.36	73	0.843
1000	2.83	19.02	34.36	27.42	67	0.994
1200	2.58	19.05	34.42	27.48	62	1.135

Station Os 10 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0945–1150	26	6	1957	49°28′ N	171°50′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
04	05	02	068	NE 2	NE 1	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		6.5	18.18	32.84	7.07	101
10	0	6.87	18.18	32.84	7.20	103
20	〃	6.58	18.19	32.86	7.19	103
30	〃	5.15	18.23	32.94	7.18	100
50	〃	4.00	18.27	33.01	7.04	95
75	2	3.64	18.29	33.04	6.82	91
100	〃	3.50	18.45	33.33	5.32	71
149	6	3.43	18.69	33.77	2.22	30
199	〃	3.45	18.75	33.87	1.94	26
297	8	3.47	18.82	34.00	0.93	13
396	〃	3.43	18.89	34.13		
495	〃	3.41	18.90	34.14	0.57	8
594	〃	3.21	18.95	34.23	0.55	7
792	〃	2.87	19.00	34.33	0.78	11
986	〃	2.63	19.04	34.34	0.68	9
1178	〃	2.43	19.07	34.45	0.88	12
1470	〃	2.13	19.10	34.51		

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^3 \triangle st$	$\triangle D$
0	6.5	18.18	32.84	25.81	220	
10	6.87	18.18	32.84	25.76	225	0.022
20	6.58	18.19	32.86	25.82	219	0.044
30	5.15	18.23	32.94	26.04	198	0.065
50	4.00	18.27	33.01	26.22	181	0.103
75	3.64	18.29	33.04	26.33	171	0.147
100	3.50	18.45	33.33	26.39	165	0.189
150	3.43	18.69	33.77	26.88	118	0.261
200	3.45	18.75	33.87	26.96	111	0.318
300	3.47	18.83	34.02	27.08	99	0.425
400	3.43	18.89	34.13	27.17	91	0.523
500	3.40	18.90	34.14	27.19	89	0.617
600	3.20	18.98	34.25	27.29	80	0.705
800	2.85	19.00	34.33	27.38	71	0.865
1000	2.62	19.05	34.42	27.48	62	1.008
1200	2.41	19.08	34.47	27.53	57	1.138
1500	(2.10)	(19.11)	(34.52)	(27.61)	(49)	(1.317)

Table 3. (Continued)

Station Os 11 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0110–0247	27	6	1957	48°18′ N	171°43′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
04	01	02	090	SE 1	NE 1	4	12

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.6	18.22	32.92		
10	0	7.08	18.22	32.92	7.09	103
20	〃	6.61	18.23	32.94	7.12	102
30	〃	6.52	18.23	32.94	7.04	101
50	〃	4.42	18.25	32.97	7.32	100
75	2	3.97	18.27	33.01	6.95	95
100	〃	3.57	18.30	33.06	6.81	91
150	〃	3.37	18.65	33.69	2.80	37
200	〃	3.60	18.74	33.86	1.15	16
300	3	3.58	18.84	34.04	0.66	9
400	〃	3.51	18.89	34.13	0.59	8
500	〃	3.33	18.89	34.13	0.87	12
600	〃	3.11	19.01	—	0.59	
799	〃	2.86	—	34.34	0.87	12
995	〃	2.62	19.04	34.40	0.90	12
1190	〃	2.40	19.06	34.43	1.04	13
1488	〃	2.10	19.09	34.49		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.6	18.22	32.92
10	7.08	18.22	32.92
20	6.61	18.23	32.94
30	6.52	18.23	32.94
50	4.42	18.25	32.97
75	3.97	18.27	33.01
100	3.57	18.30	33.06
150	3.37	18.65	33.69
200	3.60	18.74	33.86
300	3.58	18.84	34.04
400	3.51	18.89	34.13
500	3.33	18.89	34.13
600	3.11	18.92	34.18
800	2.86	19.01	34.34
1000	2.61	19.04	34.40
1200	2.39	19.06	34.43
1500	(2.09)	(19.09)	(34.49)

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.71	229	
25.79	222	0.023
25.87	214	0.044
25.88	213	0.066
26.15	188	0.106
26.23	180	0.152
26.31	172	0.196
26.83	123	0.271
26.94	113	0.330
27.10	98	0.437
27.16	92	0.535
27.18	90	0.629
27.24	84	0.719
27.40	69	0.881
27.46	63	1.024
27.51	59	1.158
(27.58)	(52)	(1.344)

Station Os 12 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2105–2240	28	6	1957	50°29′ N	175°47′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
11	05	43	080	ESE 2	SW 1	3	16

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.2	18.22	32.92	6.96	101
10	3	6.56	18.23	32.94	7.16	102
20	〃	6.16	18.23	32.94	7.19	102
30	〃	5.93	18.24	32.95	7.14	101
50	〃	4.68	18.24	32.95	7.08	101
75	5	3.64	18.28	33.03	7.06	95
100	〃	3.47	18.35	33.15	6.03	81
150	〃	3.59	18.69	33.77	1.74	23
200	〃	3.59	18.78	33.93	1.10	15
278	24	3.60	18.84	34.04	0.72	10
370	〃	3.47	18.89	34.13	0.55	7
468	〃	3.30	18.95	34.23	0.54	7
559	〃	3.13	18.95	34.23	0.53	7
755	〃	2.87	18.99	34.31	0.89	11
950	〃	2.64	19.00	34.33	0.80	10
1146	〃	2.42	19.05	34.42	0.62	8
1440	〃	2.12	19.09	34.49	1.15	15

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.2	18.22	32.92
10	6.56	18.23	32.94
20	6.16	18.23	32.94
30	5.93	18.24	32.95
50	4.68	18.24	32.95
75	3.64	18.28	33.03
100	3.47	18.35	33.15
150	3.59	18.69	33.77
200	3.59	18.78	33.93
300	3.58	18.85	34.05
400	3.39	18.91	34.16
500	3.23	18.95	34.23
600	3.10	18.96	34.25
800	2.82	18.99	34.31
1000	2.60	19.01	34.34
1200	2.39	19.06	34.43

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.77	224	
25.88	213	0.022
25.93	039	0.043
25.97	205	0.064
26.11	191	0.103
26.27	176	0.150
26.39	165	0.192
26.87	119	0.264
26.99	108	0.321
27.10	98	0.425
27.20	88	0.521
27.28	80	0.608
27.30	79	0.692
27.37	72	0.852
27.42	67	1.002
27.51	59	1.140

Table 3. (Continued)

Station Os 13 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0510–0710	29	6	1957	51°30′ N	176°01′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
07	08	02	070	E 3	SW 1	5	12

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.3	18.15	32.79	6.81	99
10	4	7.13	18.16	32.81	7.00	101
20	〃	6.31	18.18	32.84	6.99	98
30	〃	6.31	18.20	32.88	6.94	99
50	〃	4.58	18.35	33.15	5.87	81
73	15	4.54	18.39	33.22	5.60	77
97	〃	4.37	18.41	33.26	5.21	71
145	〃	4.35	18.47	33.37	4.62	63
193	〃	4.25	18.53	33.48	4.16	57
265	26	4.35	18.66	33.71	2.52	34
354	〃	4.32	18.78	33.93	1.27	17
446	〃	3.82	18.80	33.96	1.07	14
538	〃	3.60	18.87	34.09	0.82	11
731	〃	3.40	18.90	34.14	1.15	15
924	〃	3.17	18.95	34.23	0.85	11
1116	〃	2.88	18.99	34.31	0.67	9
1414	〃	2.34	19.06	34.43	1.45	19

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	7.3	18.15	32.79	25.66	234	
10	7.13	18.16	32.81	25.70	230	0.023
20	6.31	18.18	32.84	25.83	218	0.046
30	6.31	18.20	32.88	25.86	215	0.067
50	4.58	18.35	33.15	26.28	175	0.107
75	4.53	18.39	33.22	26.34	170	0.150
100	4.36	18.41	33.26	26.39	165	0.192
150	4.34	18.48	33.39	26.49	155	0.273
200	4.25	18.55	33.51	26.60	145	0.349
300	4.37	18.71	33.80	26.81	125	0.486
400	4.13	18.79	33.95	26.95	112	0.607
500	3.68	18.84	34.04	27.07	100	0.716
600	3.54	18.89	34.13	27.16	92	0.816
800	3.31	18.92	34.18	27.23	85	1.003
1000	3.03	18.97	34.27	27.33	76	1.176
1200	2.74	19.01	34.34	27.41	68	1.133

Station Os 14 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1735–1920	1	7	1957	50°50′ N	179°10′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
35	14	02	068	N 4	E 2	5	10

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.1	18.12	32.74		
10	12	7.16	18.13	32.75	7.08	102
19	〃	7.17	18.13	32.75	6.97	101
29	〃	7.08	18.13	32.75	6.87	99
49	〃	6.42	18.20	32.88	6.92	98
66	28	4.10	18.24	32.95	6.26	85
88	〃	3.96	18.37	33.19	5.77	79
132	〃	3.97	18.49	33.40	5.93	80
177	〃	4.06	18.59	33.58	3.75	51
223	45	4.20	18.79	33.95	1.06	15
302	〃	4.18	18.82	34.00	0.34	5
374	〃	3.90	18.87	34.09	0.59	8
457	〃	3.70	18.91	34.16	0.47	6
616	〃	3.36	18.96	34.25	0.48	6
777	〃	3.16	18.98	34.29	0.45	6
941	〃	2.88	19.01	34.34	0.58	8
1211	〃	2.53	19.07	34.45	0.61	8

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	7.1	18.12	32.74	25.64	236	
10	7.16	18.13	32.75	25.65	235	0.024
20	7.17	18.13	32.75	25.65	235	0.047
30	7.07	18.13	32.75	25.66	234	0.071
50	6.30	18.20	32.88	25.87	214	0.116
75	4.01	18.30	33.06	26.27	176	0.165
100	3.90	18.41	33.26	26.44	160	0.207
150	4.00	18.53	33.48	26.60	145	0.284
200	4.13	18.71	33.80	26.84	122	0.351
300	4.19	18.82	34.00	26.99	108	0.468
400	3.85	18.88	34.11	27.11	97	0.673
500	3.55	18.93	34.20	27.22	86	0.768
600	3.38	18.96	34.25	27.28	80	0.856
800	3.12	18.99	34.31	27.34	75	1.021
1000	2.82	19.03	34.38	27.43	66	1.173
1200	2.54	19.07	34.45	27.51	59	1.312

Table 3. (Continued)

Station Os 15 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1100–1230	1	7	1957	50°07′ N	179°13′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
02	02	03	073	NNE 1	NE 2	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.5	18.27	33.01	6.84	100
10	4	7.18	18.27	33.01	6.94	101
20	2	7.09	18.27	33.01		
30	〃	6.97	18.27	33.01		
50	〃	4.89	18.27	33.01	7.02	98
75	4	3.64	18.27	33.01	7.10	95
100	2	3.45	18.27	33.01	6.94	92
150	4	3.45	18.39	33.22	5.60	75
200	〃	3.29	18.63	33.66	1.38	18
293	12	3.48	18.82	34.00	1.10	15
389	〃	3.42	18.88	34.11	0.93	12
487	〃	3.34	18.90	34.14	0.87	12
583	〃	3.21	18.94	34.22	0.73	10
780	〃	2.91	18.99	34.31	0.73	10
979	〃	2.72	19.04	34.40	0.72	10
1176	〃	2.48	19.06	34.43	0.84	11
1471	〃	2.27	19.09	34.49	1.05	14

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.5	18.27	33.01
10	7.18	18.27	33.01
20	7.09	18.27	33.01
30	6.97	18.27	33.01
50	4.89	18.27	33.01
75	3.64	18.27	33.01
100	3.45	18.27	33.01
150	3.45	18.39	33.22
200	3.29	18.63	33.66
300	3.49	18.83	34.02
400	3.40	18.89	34.13
500	3.33	18.91	34.16
600	3.19	18.95	34.23
800	2.90	19.00	34.33
1000	2.70	19.05	34.42
1200	2.46	19.07	34.45
1500	(2.25)	(19.09)	(34.49)

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.80	221	
25.84	217	0.022
25.86	215	0.044
25.88	213	0.065
26.13	190	0.105
26.26	177	0.151
26.28	175	0.196
26.45	159	0.280
26.81	125	0.351
27.08	99	0.465
27.18	90	0.563
27.21	87	0.655
27.28	80	0.743
27.38	71	0.904
27.47	62	1.048
27.52	58	1.180
(27.57)	(53)	(1.305)

Station Os 16 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0525–0710	2	7	1957	49°08′ N	179°10′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
32	21	02	072	NW 5	NW 3	5	7

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.7	18.24	32.95	7.09	104
9	24	7.71	18.24	32.95	7.07	104
18	〃	7.72	18.24	32.95	7.11	104
27	〃	7.62	18.24	32.95	7.08	103
46	〃	5.91	18.24	32.95	6.91	97
59	38	5.11	18.27	33.01	6.96	94
79	〃	4.44	18.29	33.04	6.83	93
118	〃	4.00	18.40	33.24	5.65	77
158	〃	4.09	18.55	33.51	3.98	54
148	63	3.97	18.47	33.37	4.44	60
196	〃	4.06	18.57	33.55	3.80	52
239	〃	3.81	18.63	33.66	3.58	48
286	〃	3.74	18.70	33.78	2.20	30
375	〃	3.62	18.78	33.93	1.51	20
464	〃	3.64	18.85	34.05	0.90	12
554	〃	3.52	18.90	34.14	0.62	8
701	〃	3.30	18.96	34.25	0.97	13

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.7	18.24	32.95
10	7.71	18.24	32.95
20	7.71	18.24	32.95
30	7.57	18.24	32.95
50	5.60	18.25	32.97
75	4.50	18.28	33.03
100	4.12	18.33	33.12
150	3.98	18.49	33.40
200	4.04	18.57	33.55
300	3.73	18.71	33.80
400	3.62	18.80	33.96
500	3.61	18.87	34.09
600	3.46	18.92	34.18
800	(3.15)	(18.99)	(34.31)

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.73	228	
25.73	228	0.023
25.73	228	0.046
25.74	227	0.068
26.02	200	0.109
26.18	185	0.157
26.30	173	0.202
26.54	151	0.284
26.75	131	0.355
26.88	118	0.481
27.02	105	0.596
27.12	96	0.699
27.21	87	0.795
(27.34)	(75)	(0.967)

Table 3. (Continued)

Station Os 17 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1510–1646	2	7	1957	48°00′N	179°12′W

dd	ff	ww	TTT	Sea	Swell	C	Tr
31	09	20	064	NW 3	NW 2	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.7	18.26	32.99	6.66	98
10	15	7.84	18.27	33.01	6.74	99
19	〃	7.88	18.27	33.01	6.70	99
29	〃	7.86	18.30	33.06	6.70	99
49	〃	5.91	18.34	33.13	6.91	98
69	23	4.87	18.34	33.13	6.84	94
92	〃	4.85	18.39	33.22	6.86	95
138	〃	4.22	18.59	33.58	5.56	76
184	〃	3.45	18.64	33.68	4.25	57
214	45	3.44	18.69	33.77	3.85	51
292	〃	3.42	18.74	33.86	2.49	33
374	〃	3.40	18.82	34.00	1.64	22
457	〃	3.43	18.84	34.04	1.22	16
631	〃	3.30	18.97	34.27	0.79	11
810	〃	3.09	19.00	34.33	2.10	28
999	〃	2.80	19.02	34.36	1.09	14
1283	〃	2.51	19.06	34.43	1.01	13

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.7	18.26	32.99
10	7.84	18.27	33.01
20	7.88	18.27	33.01
30	7.85	18.30	33.06
50	5.85	18.34	33.13
75	4.86	18.35	33.15
100	4.82	18.40	33.24
150	4.02	18.60	33.60
200	3.44	18.67	33.73
300	3.42	18.75	33.87
400	3.41	18.83	34.02
500	3.39	18.86	34.07
600	3.33	18.95	34.23
800	3.10	19.00	34.33
1000	2.80	19.02	34.36
1200	2.60	19.05	34.42

Computed

σ_t	$10^5/\Delta st$	ΔD
25.76	225	
25.75	226	0.023
25.74	227	0.045
25.79	222	0.068
26.12	191	0.109
26.24	179	0.155
26.32	172	0.199
26.69	136	0.277
26.85	121	0.342
26.97	110	0.460
27.09	98	0.566
27.13	95	0.666
27.27	81	0.758
27.36	73	0.922
27.42	67	1.073
27.48	62	1.215

Station Os 18 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1435–1614	3	7	1957	50°18′N	176°00′W

dd	ff	ww	TTT	Sea	Swell	C	Tr
29	20	02	064	W 4	WNW 2	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.4	18.20	32.88	6.82	99
10	13	7.80	18.20	32.88	6.97	102
19	〃	7.51	18.20	32.88	7.18	105
29	〃	7.45	18.20	32.88	6.96	101
49	〃	4.83	18.24	32.95	6.72	92
68	25	4.15	18.35	33.15	6.21	84
91	〃	3.98	18.50	33.42	4.97	67
136	〃	4.26	18.64	33.68	2.26	31
182	〃	4.32	18.74	33.86	1.72	24
223	42	4.12	18.82	34.00	1.51	21
300	〃	3.87	18.86	34.07	0.78	11
385	〃	3.84	18.89	34.13	1.06	14
481	〃	3.35	18.95	34.23	0.84	11
671	〃	3.15	19.00	34.33	0.73	10
866	〃	2.92	19.02	34.36	0.74	10
1059	〃	2.63	19.05	34.42	0.79	10
1348	〃	2.34	19.09	34.49	0.68	9

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.4	18.20	32.88
10	7.80	18.20	32.88
20	7.51	18.20	32.88
30	7.44	18.20	32.88
50	4.70	18.24	32.95
75	4.02	18.43	33.30
100	4.00	18.54	33.49
150	4.27	18.68	33.75
200	4.27	18.78	33.93
300	3.87	18.86	34.07
400	3.82	18.90	34.14
500	3.32	18.96	34.25
600	3.21	18.98	34.29
800	3.00	19.01	34.34
1000	2.72	19.04	34.40
1200	2.50	19.07	34.45

Computed

σ_t	$10^5/\Delta st$	ΔD
25.72	229	
25.66	234	0.023
25.70	230	0.046
25.71	229	0.069
26.11	191	0.112
26.45	159	0.156
26.61	144	0.194
26.78	128	0.262
26.92	115	0.324
27.08	99	0.433
27.14	94	0.532
27.28	80	0.623
27.32	77	0.705
27.38	71	0.862
27.45	64	1.008
27.51	59	1.143

Table 3. (Continued)

Station Os 19 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2305–0105	3	7	1957	51°19′ N	175°59′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
27	11	02	080	W 3	W 2	5	12

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.9	18.12	32.74	6.67	103
10	6	7.91	18.12	32.74	6.92	102
20	〃	7.73	18.12	32.74	6.97	102
30	〃	6.49	18.15	32.79	6.97	100
50	〃	4.68	18.20	32.88	6.65	91
72	16	4.00	18.30	33.06	6.00	81
96	〃	4.55	18.53	33.48	3.86	53
144	〃	4.59	18.80	33.96	2.57	35
185	22	4.58	—	—	1.55	
260	30	4.33	18.82	34.00	0.95	13
350	〃	3.97	18.87	34.09	0.68	9
444	〃	3.84	18.92	34.18	0.43	6
539	〃	3.62	18.95	34.23	0.51	7
730	〃	3.28	18.98	34.29	0.44	6
922	〃	3.00	19.03	34.38	0.47	6
1114	〃	2.65	19.07	34.45	0.53	7
1401	〃	2.35	19.10	34.51	0.83	11

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	7.9	18.12	32.74	25.53	247	
10	7.91	18.12	32.74	25.53	247	0.025
20	7.73	18.12	32.74	25.56	244	0.049
30	6.49	18.15	32.79	25.77	224	0.073
50	4.68	18.20	32.88	26.05	197	0.115
75	3.99	18.33	33.12	26.31	172	0.161
100	4.57	18.57	33.55	26.59	146	0.201
150	4.60	18.80	33.96	26.92	115	0.267
200	4.57	18.81	33.98	26.93	114	0.325
300	4.10	18.85	34.05	27.04	103	0.435
400	3.88	18.90	34.14	27.14	94	0.537
500	3.75	18.94	34.22	27.21	87	0.631
600	3.50	18.96	34.25	27.27	81	0.719
800	3.17	19.00	34.33	27.35	74	0.884
1000	2.86	19.05	34.42	27.46	63	1.033
1200	2.55	19.08	34.47	27.52	58	1.168

Station Os 20 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2045–2240	4	7	1957	49°00′ N	172°37′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
23	08	02	080	SW 1	SW 1	3	12

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		8.3	18.11	32.72	6.65	99
10	14	8.32	18.11	32.72	6.69	102
19	〃	8.27	18.12	32.74	6.72	100
29	〃	8.18	18.12	32.74	6.69	99
49	〃	5.67	18.16	32.81	6.74	95
63	32	4.84	18.19	32.86	6.70	99
85	〃	4.76	18.22	32.92	6.57	89
127	〃	4.55	18.50	33.42	3.60	49
135	48	4.58	18.56	33.53	3.25	45
202	〃	4.61	18.69	33.77	2.00	28
280	〃	4.29	18.78	33.93	1.18	16
355	〃	4.12	18.79	33.95	0.74	10
430	〃	4.03	18.87	34.09	0.87	12
580	〃	3.74	18.90	34.14	0.49	7
729	〃	3.43	18.97	34.27	0.50	7
885	〃	3.09	19.00	34.33	0.56	7
1123	〃	2.75	19.05	34.42	0.95	12

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	8.3	18.11	32.72	25.47	252	
10	8.32	18.11	32.72	25.47	252	0.025
20	8.26	18.12	32.74	25.48	251	0.050
30	8.16	18.12	32.74	25.50	249	0.076
50	5.55	18.16	32.81	25.90	211	0.122
75	4.80	18.21	32.90	26.06	196	0.173
100	4.70	18.24	32.95	26.11	191	0.222
150	4.60	18.43	33.30	26.39	165	0.311
200	4.62	18.68	33.75	26.74	132	0.386
300	4.13	18.78	33.93	26.93	114	0.510
400	4.08	18.84	34.04	27.03	104	0.622
500	3.95	18.88	34.11	27.10	98	0.727
600	3.70	18.91	34.16	27.18	90	0.826
800	3.29	18.99	34.31	27.32	77	1.003
1000	2.90	19.03	34.38	27.42	67	1.159
1200	(2.60)	(19.08)	(34.47)	(27.52)	(58)	(1.298)

Table 3. (Continued)

Station Os 21 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0400–0605	5	7	1957	49°59′ N	172°23′W

dd	ff	ww	TTT	Sea	Swell	C	Tr
23	14	02	078	SW 4	W 2	4	13

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		8.3	18.19	32.86	6.73	100
10	13	8.21	18.18	32.84	6.83	101
19	〃	8.27	18.18	32.84	6.64	99
29	〃	8.16	18.18	32.84	6.72	100
49	〃	6.09	18.20	32.88	6.82	98
59	38	5.62	18.23	32.94	6.86	96
79	〃	5.26	18.24	32.95	6.76	94
118	〃	4.07	18.48	33.39	4.68	63
130	50	4.09	18.53	33.48	4.44	60
210	〃	3.60	18.69	33.77	2.51	34
289	〃	3.68	18.75	33.87	1.40	19
368	〃	3.66	18.82	34.00	0.82	11
448	〃	3.61	18.90	34.14	0.73	10
612	〃	3.46	18.95	34.23	0.69	9
795	〃	3.12	18.99	34.31	0.61	8
980	〃	2.85	19.02	34.45	0.61	8
1265	〃	2.54	19.08	34.47	0.69	9

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	8.3	18.19	32.86	25.58	242	
10	8.21	18.18	32.84	25.57	243	0.024
20	8.27	18.18	32.84	25.56	244	0.049
30	8.12	18.18	32.84	25.59	241	0.073
50	6.00	18.20	32.88	25.91	210	0.118
75	5.30	18.24	32.95	26.04	198	0.169
100	4.46	18.37	33.19	26.32	172	0.216
150	4.00	18.58	33.57	26.67	138	0.294
200	3.62	18.68	33.75	26.84	122	0.360
300	3.69	18.76	33.89	26.96	111	0.478
400	3.65	18.86	34.07	27.11	97	0.585
500	3.57	18.92	34.18	27.20	88	0.681
600	3.47	18.95	34.23	27.25	83	0.771
800	3.11	18.99	34.31	27.34	75	0.939
1000	2.83	19.03	34.38	27.43	66	1.092
1200	2.61	19.07	34.45	27.50	60	1.232

Station Os 22 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2305–0100	5	7	1957	51°00′ N	172°11′W

dd	ff	ww	TTT	Sea	Swell	C	Tr
27	10	02	095	W 3	W 2	4	12

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		8.1	18.05	32.61	6.87	101
10	8	8.04	18.05	32.61	6.88	101
20	〃	7.95	18.05	32.61	6.81	100
30	〃	7.70	18.05	32.61	6.85	100
50	〃	5.55	18.12	32.74	6.88	96
72	16	4.08	18.20	32.84	6.54	89
96	〃	4.09	18.30	33.06	5.89	80
144	〃	4.26	18.48	33.39	1.84	25
192	〃	4.11	18.79	33.95	0.73	10
274	24	3.91	18.84	34.04	0.54	7
361	〃	3.74	18.89	34.13	0.40	5
451	〃	3.60	18.92	34.18	0.27	4
541	〃	3.49	18.95	34.23	0.39	5
735	〃	3.13	18.99	34.31	0.39	5
929	〃	2.89	19.02	34.36	0.44	6
1124	〃	2.62	19.06	34.43	0.47	6
1417	〃	2.19	19.09	34.49	1.00	13

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	8.1	18.05	32.61	25.41	258	
10	8.04	18.05	32.61	25.42	257	0.026
20	7.95	18.05	32.61	25.43	256	0.051
30	7.70	18.05	32.61	25.47	252	0.077
50	5.55	18.12	32.74	25.84	217	0.124
75	4.06	18.21	32.90	26.13	190	0.175
100	4.11	18.32	33.10	26.28	175	0.221
150	4.25	18.52	33.46	26.56	149	0.302
200	4.09	18.80	33.96	26.97	110	0.368
300	3.88	18.85	34.05	27.07	100	0.475
400	3.70	18.90	34.14	27.16	92	0.574
500	3.55	18.93	34.20	27.21	86	0.667
600	3.39	18.96	34.25	27.28	80	0.754
800	3.06	19.00	34.33	27.37	72	0.916
1000	2.80	19.03	34.38	27.43	66	1.065
1200	2.52	19.07	34.45	27.51	59	1.202

Table 3. (Continued)

Station Os 23 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0655–0900	6	7	1957	51°50′ N	172°00′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
27	02	02	066	W 1		4	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		6.1	18.15	32.79	6.30	89
10	0	5.89	18.15	32.79	6.13	87
20	〃	5.54	18.21	32.90	6.13	86
30	〃	5.28	18.26	32.99		
50	〃	4.90	18.35	33.15	4.85	67
75	4	4.68	18.42	33.28	4.13	59
100	〃	4.60	18.45	33.33	3.98	55
150	〃	4.52	18.52	33.46	3.46	48
190	18	4.51	18.55	33.51	3.33	46
288	〃	4.51	18.69	33.77	2.27	31
381	〃	4.21	18.80	33.96	0.90	12
470	〃	4.06	18.84	34.04	0.65	9
555	〃	3.81	18.89	34.13	0.45	6
730	〃	3.52	18.95	34.23	0.54	7
900	〃	3.17	18.96	34.25	0.48	6
1064	〃	2.85	19.04	34.40	0.53	7
1345	〃	2.43	19.07	34.45	0.36	4

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	6.1	18.15	32.79	25.82	219	
10	5.89	18.15	32.79	25.85	216	0.022
20	5.54	18.21	32.90	25.97	205	0.043
30	5.28	18.26	32.99	26.08	194	0.063
50	4.90	18.35	33.15	26.24	179	0.100
75	4.68	18.42	33.28	26.37	167	0.144
100	4.60	18.45	33.33	26.42	162	0.185
150	4.52	18.52	33.46	26.53	152	0.264
200	4.51	18.57	33.55	26.60	145	0.339
300	4.49	18.71	33.80	26.80	126	0.477
400	4.18	18.80	33.96	26.96	111	0.598
500	3.97	18.86	34.07	27.07	100	0.707
600	3.73	18.91	34.16	27.17	91	0.812
800	3.39	18.96	34.25	27.28	80	0.994
1000	2.96	19.00	34.33	27.37	72	1.158
1200	2.64	19.06	34.43	27.48	62	1.305

Station Os 24 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2355–0200	6	7	1957	53°00′ N	171°59′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
11	05	02	080	ESE 2	0	4	16

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		8.0	18.32	33.10	6.96	103
10	0	7.83	18.33	33.12	6.74	99
20	〃	6.86	18.34	33.13	7.02	101
30	〃	5.97	18.34	33.13	7.16	101
50	〃	4.96	18.34	33.13	6.71	93
75	3	4.16	18.35	33.15	6.23	85
100	〃	3.96	18.39	33.22	5.93	80
150	〃	3.73	18.45	33.33	5.28	71
200	〃	3.89	18.52	33.46	4.37	59
272	24	3.81	18.59	33.58	3.58	48
358	〃	3.81	18.64	33.68	2.55	35
445	〃	3.66	18.72	33.82	1.74	23
526	〃	3.50	18.84	34.04	1.06	14
695	〃	3.34	18.89	34.13	0.81	11
862	〃	3.21	18.95	34.23	0.66	9
1039	〃	2.93	19.00	34.33	0.56	7
1314	〃	2.45	19.06	34.43	0.68	9

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	8.0	18.32	33.10	25.80	221	
10	7.83	18.33	33.12	25.84	217	0.022
20	6.86	18.34	33.13	25.99	203	0.043
30	5.97	18.34	33.13	26.11	191	0.063
50	4.96	18.34	33.13	26.22	181	0.100
75	4.16	18.35	33.15	26.32	172	0.144
100	3.96	18.39	33.22	26.40	164	0.186
150	3.73	18.45	33.33	26.52	153	0.266
200	3.89	18.52	33.46	26.59	146	0.341
300	3.81	18.60	33.60	26.72	134	0.483
400	3.75	18.68	33.75	26.83	123	0.614
500	3.52	18.81	33.98	27.04	103	0.731
600	3.43	18.87	34.09	27.14	94	0.834
800	3.26	18.93	34.20	27.24	84	1.022
1000	3.00	18.99	34.31	27.35	74	1.192
1200	2.68	19.03	34.38	27.44	65	1.344

Table 3. (Continued)

Station Os 25 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0730–0920	7	7	1957	53°50′ N	172°00′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
11	05	02	076	SE 2	SW 1	4	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		8.0	18.31	33.08	6.88	102
10	0	7.83	18.30	33.06	6.97	102
20	〃	7.02	18.31	33.08	7.11	103
30	〃	6.49	18.33	33.12	7.18	103
50	〃	5.37	18.33	33.12	6.98	97
75	〃	4.15	18.36	33.17	6.18	84
100	〃	3.72	18.40	33.24	6.04	81
142	19	3.64	18.42	33.28	6.04	81
189	〃	3.66	18.48	33.39	4.98	67
282	〃	3.78	18.58	33.57		
373	〃	3.77	18.66	33.71	2.53	34
465	〃	3.64	18.78	33.93	1.48	20
560	〃	3.61	18.83	34.02		
751	〃	3.30	18.89	34.13	0.71	10
941	〃	3.08	18.99	34.31	0.59	8
1136	〃	2.84	19.01	34.34	0.54	7
1431	〃	2.41	19.08	34.47	0.79	10

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \Delta st$	ΔD
0	8.0	18.31	33.08	25.79	222	
10	7.83	18.30	33.06	25.80	221	0.022
20	7.02	18.31	33.08	25.93	209	0.044
30	6.49	18.33	33.12	26.03	199	0.064
50	5.37	18.33	33.12	26.17	186	0.103
75	4.15	18.36	33.17	26.34	170	0.147
100	3.72	18.40	33.24	26.44	160	0.188
150	3.64	18.42	33.28	26.48	156	0.268
200	3.68	18.49	33.40	26.57	148	0.344
300	3.79	18.59	33.58	26.70	135	0.488
400	3.72	18.70	33.78	26.86	120	0.618
500	3.62	18.80	33.96	27.02	105	0.734
600	3.58	18.85	34.05	27.10	98	0.840
800	3.21	18.91	34.16	27.22	86	1.034
1000	3.00	19.00	34.33	27.37	72	1.205
1200	2.78	19.03	34.38	27.43	66	1.359

Station Os 26 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0810–1000	8	7	1957	53°45′ N	176°01′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
07	08	45	076	ENE 3	E 1	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.2	18.34	34.14	7.09	103
10	6	7.23	18.33	34.12	7.14	103
20	〃	7.13	18.33	34.12	7.13	103
30	〃	6.78	18.33	34.12	7.14	103
50	〃	4.79	18.37	34.19	7.03	97
72	16	3.91	18.37	34.19	6.88	93
96	〃	3.06	18.37	34.19	6.88	92
144	〃	2.82	18.40	34.24	6.83	90
192	〃	3.13	18.42	34.28	6.91	93
263	29	3.76	18.62	34.64	3.82	52
351	〃	3.72	18.73	34.84		
442	〃	3.67	18.79	34.94	1.30	18
535	〃	3.51	18.84	34.04	1.14	15
721	〃	3.47	18.91	34.16	0.66	9
907	〃	3.00	18.99	34.31	0.62	8
1093	〃	2.69	19.03	34.38	0.58	8
1375	〃	2.45	19.06	34.43	0.64	8

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \Delta st$	ΔD
0	7.2	18.34	33.14	25.94	208	
10	7.23	18.33	33.12	25.93	209	0.021
20	7.13	18.33	33.12	25.94	208	0.042
30	6.78	18.33	33.12	25.99	203	0.062
50	4.79	18.37	33.19	26.28	175	0.100
75	3.75	18.37	33.19	26.39	165	0.143
100	2.98	18.37	33.19	26.47	157	0.183
150	2.82	18.40	33.24	26.52	153	0.261
200	3.18	18.43	33.30	26.53	152	0.337
300	3.78	18.68	33.75	26.83	123	0.476
400	3.70	18.76	33.89	26.96	111	0.596
500	3.58	18.83	34.02	27.07	100	0.705
600	3.49	18.85	34.05	27.11	97	0.807
800	3.35	18.95	34.23	27.26	82	0.996
1000	2.80	19.01	34.34	27.40	69	1.159
1200	2.58	19.04	34.40	27.46	63	1.304

Table 3. (Continued)

Station Os 27 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2105–2300	8	7	1957	53°47′ N	179°11′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
12	08	61	080	ESE 3	E 1	4	13

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7,2	18.28	33.03	7.12	103
10	6	7.16	18.28	33.03	7.26	105
20	〃	6.26	18.33	33.12	7.27	103
30	〃	6.00	18.34	33.13	7.29	103
50	7	4.00	18.36	33.16	6.98	95
73	12	3.46	18.36	33.16	6.97	93
98	〃	3.08	18.36	33.16	6.72	89
147	〃	3.41	18.55	33.51	4.83	65
196	〃	3.67	18.64	33.68	3.02	41
285	18	3.72	18.74	33.86	1.59	21
380	〃	3.57	18.81	33.98	1.35	18
474	〃	3.47	18.83	34.02	0.95	13
569	〃	3.40	18.84	34.04	1.80	24
761	〃	3.18	18.88	34.11	0.78	10
985	〃	2.85	19.01	34.34	0.50	7
1151	〃	2.67	19.04	34.40	1.84	11
1444	〃	2.29	19.08	34.47	0.72	9

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	7.2	18.28	33.03	25.85	216	
10	7.16	18.28	33.03	25.86	215	0.022
20	6.26	18.33	33.12	26.06	196	0.042
30	6.00	18.34	33.13	26.11	191	0.062
50	4.00	18.36	33.16	26.35	169	0.080
75	3.42	18.36	33.16	26.41	163	0.121
100	3.06	18.36	33.16	26.44	160	0.162
150	3.44	18.56	33.53	26.70	135	0.236
200	3.70	18.64	33.68	26.78	128	0.302
300	3.72	18.75	33.87	26.94	113	0.424
400	3.54	18.82	34.00	27.06	101	0.534
500	3.43	18.83	34.02	27.08	99	0.637
600	3.38	18.85	34.05	27.12	96	0.739
800	3.12	18.90	34.14	27.22	86	0.930
1000	2.81	19.02	34.36	27.42	67	1.094
1200	2.62	19.04	34.40	27.47	62	1.236
1500	(2.20)	(19.09)	(34.49)	(27.57)	(53)	(1.430)

Station Os 28 (1957)

Time (G M.T.)	Day	Month	Year	Latitude	Longitude
0525–0710	9	7	1957	52°50′ N	179°11′ W

dd	ff	ww	TTT	Sea	Swell	C	Tr
07	03	61	072	ENE 3	ENE 1	×	15

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		6.6	18.28	33.03	6.53	94
10	10	6.51	18.29	33.04	6.44	92
20	〃	5.46	18.39	33.22	7.46	104
30	〃	5.33	18.40	33.24	6.21	87
49	〃	4.84	18.44	33.31	6.07	84
69	23	4.64	18.45	33.33	5.57	77
90	26	4.50	18.49	33.40	4.93	68
135	〃	4.40	18.50	33.42	4.51	62
180	〃	4.20	18.51	33.44	4.25	58
276	23	4.02	18.58	33.57	3.08	42
374	〃	3.89	18.74	33.86	2.14	28
469	〃	3.68	18.76	33.89	1.55	21
563	〃	3.38	18.84	34.04	0.98	13
754	〃	3.18	18.95	34.23	0.61	8
945	〃	2.89	18.99	34.31	0.58	8
1135	〃	2.63	19.04	34.40	0.65	8
1420	〃	2.29	19.09	34.49	0.75	10

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	6.6	18.28	33.03	25.94	208	
10	6.51	18.29	33.04	25.97	205	0.021
20	5.46	18.39	33.22	26.23	180	0.040
30	5.33	18.40	33.24	26.26	177	0.058
50	4.83	18.44	33.31	26.38	166	0.092
75	4.58	18.46	33.35	26.44	160	0.133
100	4.45	18.49	33.40	26.49	155	0.173
150	4.33	18.50	33.42	26.52	153	0.250
200	4.15	18.52	33.46	26.57	148	0.326
300	3.99	18.62	33.64	26.72	134	0.468
400	3.82	18.74	33.86	26.92	115	0.595
500	3.58	18.79	33.95	27.01	106	0.709
600	3.32	18.87	34.09	27.16	92	0.812
800	3.12	18.96	34.25	27.30	79	0.992
1000	2.78	19.01	34.34	27.40	69	1.151
1200	2.56	19.06	34.43	27.49	61	1.295

Table 3. (Continued)

Station Os 29 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2300–0050	9	7	1957	52°01′ N	179°11′W

dd	ff	ww	TTT	Sea	Swell	C	Tr
11	08	02	069	ESE 3	ESE 1	4	15

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		6.1	18.29	33.04	6.88	98
10	2	5.49	18.29	33.04	6.18	87
20	〃	5.24	18.32	33.10	6.17	86
30	〃	5.06	18.38	33.21	5.86	81
50	〃	4.78	18.40	33.24	5.45	75
75	6	4.69	18.42	33.28	5.27	72
99	〃	4.51	18.45	33.33	4.97	68
149	〃	4.30	18.49	33.40	4.51	62
199	〃	4.07	18.54	33.49	4.32	59
270	26	4.05	18.59	33.58	3.50	48
359	〃	4.07	18.74	33.86	1.15	16
450	〃	3.83	18.78	33.93	1.52	20
542	〃	3.64	18.79	33.95	1.21	16
723	〃	3.30	18.93	34.20	0.73	10
912	〃	2.89	18.99	34.31	1.49	20
1101	〃	2.70	19.03	34.38	1.14	15

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	6.1	18.29	33.04
10	5.49	18.29	33.04
20	5.24	18.32	33.10
30	5.06	18.38	33.21
50	4.78	18.40	33.24
75	4.69	18.42	33.28
100	4.50	18.45	33.33
150	4.30	18.49	33.40
200	4.07	18.54	33.49
300	4.05	18.64	33.58
400	4.00	18.77	33.91
500	3.69	18.79	33.95
600	3.57	18.82	34.00
800	3.15	18.96	34.25
1000	2.79	19.01	34.34

Computed

σ_t	$10^5 \angle_{st}$	$\angle D$
26.02	200	
26.09	193	0.020
26.16	187	0.039
26.27	176	0.057
26.33	171	0.092
26.37	167	0.134
26.43	161	0.176
26.51	154	0.255
26.60	145	0.330
26.74	132	0.470
26.94	113	0.595
27.00	107	0.709
27.05	102	0.818
27.30	79	1.009
27.40	69	1.168

Station Os 30 (1957)

Time (E.M.T.)	Day	Month	Year	Latitude	Longitude
0015–0220	11	7	1957	53°00′ N	175°59′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
29	21	02	075	WNW 5	NW 3	3	15

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.1	18.33	33.12		
10	18	7.08	18.33	33.12	7.91	115
19	〃	7.02	18.33	33.12	6.91	100
29	〃	6.09	18.33	33.12	7.09	100
48	〃	4.70	18.33	33.12	6.98	96
62	34	4.42	18.34	33.13	6.82	93
83	〃	3.55	18.38	33.21	6.50	87
124	〃	3.41	18.44	33.31	5.75	77
166	〃	3.64	18.54	33.49	2.52	34
189	52	3.68	18.59	33.58	4.07	55
250	〃	3.71	18.67	33.73	2.52	34
313	〃	3.74	18.71	33.80	1.88	25
377	〃	3.61	18.74	33.86	1.16	16
527	〃	3.38	18.81	33.98	1.46	20
695	〃	3.16	18.90	34.14	2.25	30
880	〃	2.92	18.97	34.27	0.63	8

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.1	18.33	33.12
10	7.08	18.33	33.12
20	7.01	18.33	33.12
30	6.00	18.33	33.12
50	4.67	18.33	33.12
75	3.75	18.37	33.19
100	3.40	18.41	33.26
150	3.55	18.50	33.42
200	3.69	18.61	33.62
300	3.75	18.70	33.78
400	3.57	18.75	33.87
500	3.39	18.80	33.96
600	3.25	18.86	34.07
800	3.02	18.94	34.22

Computed

σ_t	$10^5 \angle$ st	$\angle$ D
25.94	208	
25.95	207	0.021
25.96	206	0.041
26.09	193	0.061
26.24	179	0.099
26.41	163	0.142
26.49	155	0.182
26.60	145	0.257
26.74	132	0.327
26.86	120	0.455
26.95	112	0.574
27.04	103	0.685
27.14	94	0.787
27.28	80	0.971

Table 3. (Continued)

Station Os 31 (1957)

Time (E.M.T.)	Day	Month	Year	Latitude	Longitude
1815–2010	12	7	1957	52°56′ N	171°51′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
32	10	02	079	NW 3	SW 3	4	11

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.8	18.18	32.84	6.58	97
10	6	7.92	18.18	32.84	6.81	100
20	〃	8.00	18.18	32.84	6.75	100
30	4	7.91	18.18	32.84	6.75	100
50	〃	4.87	18.18	32.84	6.85	95
73	10	3.92	18.35	33.15		
98	〃	3.56	18.37	33.19	6.13	82
148	〃	3.95	18.50	33.42	4.50	61
197	〃	3.94	18.58	33.57	3.42	46
271	25	3.93	18.72	33.82	2.07	28
361	〃	3.61	18.77	33.91	1.26	17
452	〃	3.51	18.84	34.04	0.95	13
543	〃	3.49	18.87	34.09	0.94	13
727	〃	3.40	—	—		
921	〃	3.12	18.94	34.22	0.61	8
1118	〃	2.86	18.98	34.29	0.55	7
1411	〃	2.43	19.08	34.47	1.03	13

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	7.8	18.18	32.84	25.63	237	
10	7.92	18.18	32.84	25.62	238	0.024
20	8.00	18.18	32.84	25.61	239	0.048
30	7.91	18.18	32.84	25.62	238	0.071
50	4.87	18.18	32.84	26.00	202	0.115
75	3.88	18.35	33.15	26.35	169	0.162
100	3.55	18.38	33.21	26.42	162	0.203
150	3.96	18.50	33.42	26.56	149	0.282
200	3.94	18.58	33.57	26.68	137	0.354
300	3.87	18.74	33.86	26.91	116	0.482
400	3.57	18.80	33.96	27.02	105	0.595
500	3.50	18.86	34.07	27.12	96	0.699
600	3.45	18.89	34.13	27.17	91	0.796
800	3.30	18.93	34.20	27.24	84	0.981
1000	3.01	18.95	34.23	27.30	79	1.156
1200	2.73	19.01	34.34	27.41	68	1.316

Station Os 32 (1957)

Time (E.M.T.)	Day	Month	Year	Latitude	Longitude
0730–0925	13	7	1957	52°07′ N	169°35′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
34	10	02	074	NNW 3	NW 1	3	13

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.1	18.17	32.83	6.75	98
10	0	7.57	18.17	32.83	6.88	101
20	〃	7.54	18.17	32.83	6.97	101
30	〃	7.44	18.17	32.83	6.86	100
50	6	4.74	18.23	33.94	6.70	94
74	〃	3.81	18.30	33.06	6.09	82
99	〃	3.85	18.40	33.24	5.36	72
149	〃	4.09	18.57	33.55	3.15	43
199	〃	4.02	18.70	33.78	2.30	31
285	18	3.72	18.76	33.89	1.50	20
381	〃	3.45	18.81	33.98	1.30	14
477	〃	3.42	18.84	34.04	0.89	12
571	〃	3.28	18.86	34.06	0.89	12
761	〃	3.16	18.96	34.25	0.55	7
950	〃	2.86	19.01	34.34	0.54	7
1142	〃	2.60	19.04	34.40	0.60	8
1433	〃	2.32	19.08	34.45	0.87	11

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5 \triangle st$	$\triangle D$
0	7.1	18.17	32.83	25.71	229	
10	7.57	18.17	32.83	25.65	235	0.023
20	7.54	18.17	32.83	25.66	234	0.047
30	7.44	18.17	32.83	25.67	233	0.070
50	4.74	18.23	32.94	26.09	193	0.113
75	3.78	18.30	33.06	26.29	174	0.159
100	3.85	18.40	33.24	26.43	161	0.201
150	4.09	18.57	33.55	26.64	141	0.277
200	4.02	18.70	33.78	26.83	123	0.344
300	3.67	18.77	33.91	26.97	110	0.462
400	3.44	18.82	34.00	27.07	100	0.570
500	3.39	18.84	34.04	27.10	98	0.672
600	3.23	18.88	34.11	27.18	90	0.770
800	3.10	18.98	34.29	27.33	76	0.944
1000	2.79	19.02	34.36	27.42	67	1.098
1200	2.55	19.05	34.42	27.48	62	1.239

Table 3. (Continued)

Station Os 33 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0905–1100	14	7	1957	51°13′ N	167°16′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
20	12	45	079	SSW 4	SSW 1	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.2	18.22	32.92	7.11	103
10	14	7.29	18.22	32.92	7.09	103
19	〃	7.26	18.22	32.92	6.46	96
29	〃	6.96	18.24	32.95	7.01	101
49	〃	4.61	18.27	33.01	7.14	98
69	22	3.67	18.27	33.01	7.14	96
93	〃	3.12	18.27	33.01	6.64	89
139	〃	2.91	18.62	33.64	3.56	47
185	〃	3.21	18.71	33.80	3.61	48
260	30	3.46	18.76	33.89	0.95	12
349	〃	3.43	18.79	33.95	1.35	17
433	〃	3.40	18.82	34.00	0.70	9
520	〃	3.40	18.84	34.04	0.83	11
700	〃	3.36	18.90	34.14	0.80	11
883	〃	3.00	18.99	34.31	0.88	12
1067	〃	2.62	19.03	34.38	0.82	11
1341	〃	2.34	—			

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.2	18.22	32.92
10	7.29	18.22	32.92
20	7.25	18.22	32.92
30	6.80	18.24	32.95
50	4.55	18.27	33.01
75	3.50	18.27	33.01
100	3.00	18.29	33.04
150	2.95	18.65	33.69
200	3.29	18.72	33.82
300	3.45	18.78	33.93
500	3.41	18.81	33.98
600	3.40	18.83	34.02
800	3.39	18.87	34.09
1000	3.13	18.95	34.23
1200	2.78	19.02	34.36

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.78	223	
25.76	225	0.023
25.77	224	0.045
25.80	215	0.067
26.17	186	0.107
26.28	175	0.153
26.35	169	0.196
26.88	118	0.268
26.94	113	0.326
27.01	106	0.437
27.06	101	0.543
27.09	98	0.646
27.15	93	0.745
27.29	80	0.927
27.42	67	1.085

Station Os 34 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2000–2200	14	7	1957	50°25′ N	165°15′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
23	07	02	074	SW 3	SW 1	4	15

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.1	18.26	32.99	6.89	100
10	4	6.90	18.26	32.99	6.94	100
20	〃	6.45	—	—	7.07	
30	〃	6.37	18.26	32.99	7.05	100
50	〃	3.26	18.26	32.99	6.80	90
72	17	3.02	18.28	33.03	7.50	99
96	〃	1.90	18.36	33.17	7.21	93
144	〃	3.12	18.57	33.55	4.00	53
191	〃	3.28	18.70	33.78	2.05	27
257	31	3.34	18.80	33.96	0.98	13
342	〃	3.38	18.86	34.07	0.58	8
429	〃	3.30	18.91	34.16	0.53	7
520	〃	3.23	18.93	34.20	0.99	13
708	〃	3.00	19.00	34.33	0.52	7
902	〃	2.79	19.02	34.36	0.49	7
1099	〃	2.53	19.05	34.42	0.50	7
1392	〃	2.25	19.09	34.49	0.93	12

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.1	18.26	32.99
10	6.90	18.26	32.99
20	6.45	18.26	32.99
30	6.37	18.26	32.99
50	3.26	18.26	32.99
75	2.95	18.29	33.04
100	1.88	18.38	33.21
150	3.15	18.59	33.58
200	3.30	18.71	33.80
300	3.39	18.83	34.02
400	3.32	18.90	34.14
500	3.25	18.93	34.20
600	3.16	18.96	34.25
800	2.89	19.01	34.34
1000	2.68	19.04	34.40
1200	2.43	19.06	34.43

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.84	217	
25.87	214	0.022
25.93	209	0.043
25.94	208	0.064
26.28	175	0.102
26.35	169	0.145
26.57	148	0.185
26.77	129	0.254
26.92	115	0.316
27.09	98	0.424
27.20	88	4.520
27.24	84	0.610
27.30	79	0.695
27.39	70	0.853
27.46	63	0.997
27.51	59	1.131

Table 3. (Continued)

Station Os 35 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0900–1110	15	7	1957	49°42′ N	163°07′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
25	09	45	067	WSW 3	W 1		×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		7.2	18.30	33.06	6.89	100
10	4	7.35	18.30	33.06	6.96	101
20	〃	6.95	18.30	33.06	7.12	103
30	〃	6.43	18.31	33.08	7.06	101
50	〃	3.44	—	—	7.35	
73	14	3.20	18.31	33.08	7.03	93
97	〃	2.47	18.35	33.15	6.87	90
146	〃	3.76	18.52	33.46	3.98	54
194	〃	4.14	18.66	33.71	2.81	38
287	17	4.05	18.76	33.89	1.45	20
381	〃	3.85	18.85	34.05	0.83	11
478	〃	3.71	18.86	34.06	0.58	8
572	〃	3.52	18.93	34.20	0.56	8
766	〃	3.22	18.96	34.25	0.46	6
957	〃	2.84	19.02	34.36	0.67	9
1149	〃	2.61	19.04	34.40	0.70	9
1442	〃	2.34	19.10	34.51	0.79	10

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.2	18.30	33.06
10	7.35	18.30	33.06
20	6.95	18.30	33.06
30	6.43	18.31	33.08
50	3.44	18.31	33.08
75	3.18	18.31	33.08
100	2.46	18.36	33.17
150	3.80	18.53	33.48
200	4.15	18.67	33.73
300	4.01	18.77	33.91
400	3.81	18.86	34.07
500	3.67	18.88	34.11
600	3.48	18.94	34.22
800	3.14	18.97	34.27
1000	2.70	19.03	34.38
1200	2.59	19.05	34.42

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.89	212	
25.87	214	0.021
25.92	210	0.043
26.01	201	0.063
26.33	171	0.100
26.36	168	0.143
26.50	154	0.183
26.61	144	0.258
26.78	128	0.327
26.93	114	0.450
27.09	98	0.559
27.13	95	0.659
27.23	85	0.754
27.31	78	0.927
27.44	65	1.081
27.48	62	1.220

Station Os 36 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0520–0715	16	7	1957	48°50′ N	160°46′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
14	04	01	090	SE 2	S 1	5	11

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		8.6	18.16	32.81	6.98	104
10	2	7.77	18.18	32.84	7.14	105
20	〃	6.82	18.19	32.86	7.20	104
30	〃	5.90	18.20	32.88		
50	〃	3.43	18.23	32.94	7.35	98
75	4	2.42	18.24	32.95	7.56	98
100	〃	1.75	18.27	33.01	7.04	90
150	〃	2.17	18.43	33.30	4.37	57
200	〃	3.28	18.67	33.73	2.14	28
282	20	3.43	18.76	33.89	2.08	28
375	〃	3.42	18.82	34.00	0.72	10
469	〃	3.41	18.84	34.04	0.60	8
561	〃	3.23	18.90	34.14	0.87	12
750	〃	3.06	18.99	34.31	0.53	7
937	〃	2.75	19.03	34.38	0.92	12
1122	〃	2.44	19.05	34.42	0.78	10
1401	〃	2.25	19.09	34.49	0.94	12

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	8.6	18.16	32.81
10	7.77	18.18	32.84
20	6.82	18.19	32.86
30	5.90	18.20	32.88
50	3.43	18.23	32.94
75	2.42	18.24	32.95
100	1.75	18.27	33.01
150	2.17	18.43	33.30
200	3.28	18.67	33.73
300	3.43	18.77	33.91
400	3.42	18.83	34.02
500	3.38	18.86	34.07
600	3.20	18.93	34.20
800	3.00	19.00	34.33
1000	2.60	19.04	34.40
1200	2.40	19.06	34.43

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.49	250	
25.63	237	0.024
25.78	223	0.047
26.92	210	0.069
26.22	181	0.108
26.32	172	0.152
26.42	162	0.194
26.62	143	0.270
26.87	119	0.336
27.00	107	0.451
27.09	98	0.556
27.13	95	0.656
27.25	83	0.749
27.37	72	0.914
27.46	63	1.060
27.51	59	1.194

Table 3. (Continued)

Station Os 37 (1957)

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1800–1930	16	7	1957	47°55′ N	158°21′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
09	15	51	090	E 4	ESE 1	4	8

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)	O_2 (cc/l)	Sat.O_2 (%)
0		8.1	18.12	32.74	6.91	102
10	14	8.06	18.12	32.74	6.91	102
19	〃	6.90	18.12	32.74	7.30	105
29	〃	3.20	18.22	32.92	7.86	104
49	〃	2.59	18.26	32.99	7.51	98
66	28	0.93	18.27	33.01	7.44	93
88	〃	0.47	18.30	33.06	7.30	90
132	〃	0.62	18.38	33.21	6.94	86
177	〃	2.08	18.52	33.46	4.32	56
233	39	3.13	18.67	33.73	2.13	28
315	〃	3.44	18.77	33.91	1.04	14
405	〃	3.45	18.83	34.02	0.84	11
590	〃	3.19	18.92	34.18		
675	〃	3.06	18.96	34.25	0.58	8
858	〃	2.85	19.01	34.34	0.57	8
1051	〃	2.57	19.04	34.40	0.60	8
1343	〃	2.25	19.09	34.49	0.96	13

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	8.1	18.12	32.74
10	8.06	18.12	32.74
20	6.60	18.12	32.74
30	3.05	18.22	32.92
50	2.53	18.26	32.99
75	0.58	18.28	33.03
100	0.43	18.32	33.10
150	1.15	18.44	33.31
200	2.65	18.60	33.60
300	3.41	18.75	33.87
400	3.45	18.83	34.02
500	3.31	18.88	34.11
600	3.18	18.92	34.18
800	2.92	18.99	34.31
1000	2.65	19.03	34.38
1200	2.34	19.07	34.45

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
25.51	248	
25.51	248	0.025
25.71	229	0.049
26.24	179	0.069
26.34	170	0.104
26.51	154	0.145
26.58	147	0.182
26.71	135	0.253
26.82	124	0.318
26.97	110	0.436
27.08	99	0.543
27.17	91	0.641
27.24	84	0.732
27.37	72	0.897
27.44	65	1.045
27.53	57	1.179

9. Data on Total Radioactivity of Sea Water
(海 水 放 射 能 記 録)

One litre of water was sampled from the sea surface at each of the stations, and brought to the laboratory. The samples were subjected to measurement by the ordinary F_α-B_α method (Miyake, Y., et al. 1955, Pap. Meteorol. Geophys. 5, 3/4) by N. Inoue and S. Nishizawa.

Table 4. Data on radio-activity of sea water on 1957 cruise to Aleutian waters

Position of sampling stations		Time of sampling	Time of counting	C. P. M. Per litre
45-44 N	152-37 E	Jun. 10, 1957	Feb. 25, 1958	3.9 ± 4.5
48-12 N	155-36 E	〃 11, 〃	〃 〃 〃	3.9 ± 4.5
47-40 N	157-56 E	〃 18, 〃	〃 〃 〃	-3,4 ± 4.2
49-45 N	162-32 E	〃 21, 〃	〃 〃 〃	-3.8 ± 4.2
51-14 N	167-10 E	〃 22, 〃	〃 〃 〃	6.6 ± 4.6
52-55 N	171-50 E	〃 25, 〃	〃 〃 〃	5.6 ± 4.5
50-37 N	171-12 E	〃 26, 〃	〃 〃 〃	1.2 ± 4.4
48-18 N	171-43 E	〃 27, 〃	〃 〃 〃	1.9 ± 4.4
50-19 N	175-36 E	〃 28, 〃	〃 〃 〃	8.6 ± 4.6
50-30 N	171-01 E	〃 29, 〃	〃 〃 〃	-1.4 ± 4.3
50-50 N	179-10 W	Jul. 2, 〃	〃 〃 〃	-3.4 ± 4.2
49-08 N	179-10 W	〃 2, 〃	〃 〃 〃	-0.4 ± 4.3
48-00 N	179-12 W	〃 3, 〃	〃 〃 〃	-6.4 ± 4.1
50-18 N	176-00 W	〃 4, 〃	〃 〃 〃	-1.1 ± 4.3
49-00 N	172-37 W	〃 5, 〃	〃 〃 〃	0.2 ± 4.3
49-59 N	172-23 W	〃 5, 〃	Feb. 27, 1958	4.2 ± 3.9
51-50 N	172-00 W	〃 6, 〃	〃 〃 〃	5.2 ± 4.6
53-50 N	172-00 W	〃 7, 〃	〃 〃 〃	1.6 ± 3.8
53-45 N	176-01 W	〃 8, 〃	〃 〃 〃	-3.4 ± 4.2
53-47 N	179-41 W	〃 9, 〃	〃 〃 〃	-3.1 ± 4.2
53-00 N	175-59 E	〃 11, 〃	〃 〃 〃	-0.1 ± 4.3
52-56 N	171-51 E	〃 13, 〃	〃 〃 〃	4.6 ± 4.5
51-13 N	167-16 E	〃 14, 〃	〃 〃 〃	-4.1 ± 4.2
49-42 N	163-07 E	〃 15, 〃	〃 〃 〃	-1.4 ± 4.3

Backgrounds; 55.4 ± 0.7

10. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Collected with NORPAC Standard Net

(北太平洋標準ネット採集によるプランクトン湿排水量及び湿重量記録)

North Pacific Standard Net, 45cm × 180cm, conical, made of bolting silk GG 54, having approximately 0.33 mm mesh aperture, was hauled up to the surface from about 150m depth.

A current-meter (flow-meter) was mounted at the center of the mouth ring of the net to register the amount of water filtered.

Duplicate hauls were made at each hydrographic station, before and after the hydrographic cast.

Unusually large organisms such as larvae of fish and squid or jellyfish were removed from the sample and were not included in the volume measurment. Same treatment was carried out in all plankton samples of the present report.

Measurement of wet displacement volume was carried out with aspiration filtering apparatus, and wet weight was measured on the samples filtered on the blotting paper of the filter disc of the apparatus.

The data are represented by calculating the amount of water filtered according to the readings of current-meter.

Measurement was made by the members of the Chair of Planktology of the University.

Table 5. Plankton volume data (45cm × 180cm, GG 54,

No. of station	Corresponding No. of hydrographic station	Position		Ship's date	Ship's time	Length of wire run out (m)	Revolutions of flow meter	Volume of water filtered (m^3)	Displacement volume per 1000 m^3 (cc)	Wet weight per 1000 m^3 (gr)
1		41-59 N	148-00 E	June 8	0750	150	1623	40.6	99	32
					1148	150	1242	31.3	383	335
2		43-24 N	149-20 E	9	0130	150	1360	34.0	235	250
					0325	150	1237	31.0	248	171
3		44-33 N	151-09 E	9	2024	150	1286	32.2	310	252
					2205	150	1228	30.7	554	374
4		45-44 N	152-36 E	10	1850	150	1440	36.2	166	199
					2045	150	1278	32.0	500	356
5		47-05 N	154-18 N	11	0845	150	1142	28.6	105	119
					1017	150	1004	25.2	357	230
6		48-12 N	156-36 E	11	2028	150	1164	29.2	548	349
					2155	150	1059	26.5	678	521
7	Os 1	48-00 N	158-35 E	19	1145	150	1155	28.9	35	52
					1257	150	1168	29.3	68	82
8	Os 2	48-45 N	160-33 E	20	1423	150	1304	32.6	92	80
					1555	150	2740	65.2	46	48
9	Os 3	49-35 N	162-45 E	21	0915	150	1618	40.5	74	47
					1050	150	1257	31.4	64	29
10	Os 4	50-20 N	164-41 E	22	0300	150	1138	28.5	70	32
					0435	150	1160	29.0	69	34
11	Os 5	51-14 N	167-16 E	22	2030	150	1148	28.9	52	10
					2200	150	1482	37.4	53	48
12	Os 6	52-04 N	169-35 E	23	1820	150	1283	32.2	124	171
					2035	150	1391	34.8	116	132
13	Os 7	52-55 N	171-50 E	25	1320	150	1600	40.4	148	163
					1535	150	1310	31.7	220	227
14	Os 8	51-46 N	171-30 E	26	0010	150	1520	38.0	421	416
					0200	150	1190	29.8	335	442
15	Os 9	50-37 N	171-12 E	26	0930	150	1212	30.4	66	36
					1140	150	1154	28.9	35	4
16	Os 10	49-28 N	171-50 E	26	2045	150	1144	28.7	122	84
					2215	150	1005	25.2	159	103
17	Os 11	48-18 N	171-43 E	27	1213	150	804	20.1	50	25
					1342	150	1082	27.1	74	55
18	Os 12	50-29 N	175-47 E	29	0910	150	1024	25.6	59	35
					1020	150	945	23.7	84	46
19	Os 13	51-30 N	176-01 E	29	1713	150	1100	27.5	182	163
					1855	150	1060	26.6	450	428
20	Os 15	50-07 N	179-13 W	July 1	2300	150	1006	25.2	198	190
					2300	150	1157	29.0	172	117
21	Os 14	50-50 N	179-10 W	2	0535	150	1150	28.8	347	219
					0705	150	1296	32.4	62	71
22	Os 16	49-08 N	179-10 W	2	1703	150	1596	40.0	175	127
					1900	150	1688	42.1	238	152

NORPAC Standard Net) on 1957 cruise to Aleutian waters

Individual number of important species				Individual number of organisms removed			Remarks
Calanus plumchrus	*Calanus cristatus*	Euphausiid	Amphipod	Squid larva	Jelly fish	Fish larva	
688	124	12	16		2		many *Sagitta* and small-sized copepods
480	36	4	52		16		many young *Eucalanus* and diatoms
136	47	6	4		19		many *Eucalanus bungii*
196	12	8	7		10		
108	60	8	11		67		many *Sagitta, Aglantha* and young *Metridia*
96	76	8	16		61		many *Aglantha* and young *Metridia*
80	17	19	1		10		many *Eucalanus bungii* and *Sagitta*
64	66	7	16		10		many *Eucalanus bungii*, *Metridia* and diatoms
96	4	6	3				many *Eucalanus bungii*
440	34	3	10		5		many *Calanus plumchrus*
588	56	7	84		6		many *Calanus plumchrus* and *Eucalanus bungii*
284	64	7	84		17		many *Eucalanus bungii*
240	4	0	36		8		〃
180	6	0	8		7		〃
58	14	2	0		22		many *Eucalanus bungii* and *Aglantha*
175	17	14	0		8		many *Eucalanus bungii*
61	8	1	6		6		〃
0	2	1	1		5		〃
2	4	0	5		4		〃
5	18	0	0		5		〃
0	1	12	1				〃
1	5	68	1		8		many euphausiids
226	11	5	12		3		many diatoms
172	40	5	9		5		many diatoms, young *Metridia* and *Eucalanus bungii*
200	36	5	8		9		〃
464	72	4	32		5		〃
38	5	7	2				many diatoms
18	5	11	4				〃
36	11	0	45		11		many small-sized copepods
16	1	0	1		1		many *Eucalanus bungii*
6	12	5	8		4		many small-sized copepods
0	9	9	5		9		many *Pleuromamma* and diatoms
0	1	0	1		5		many *Eucalanus bungii*
6	0	0	0		16		〃
3	1	0	1		10		many *Eucalanus bungii* and *Aglantha*
5	3	0	0		24		〃
824	10	5	15		7		many *Calanus plumchrus*
1328	24	1	240		5		〃
720	7	6	2		8		〃
380	5	11	5		9		〃
28	200	1	2				many *Eucalanus bungii* and *Calanus cristatus*
15	1	0	1	1	12		many *Eucalanus bungii*
130	20	48	0				many *Sagitta* and *Eucalanus bungii*
60	28	4	8	1	2		many diatoms

Table 5.

No. of station	Corresponding No. of hydrographic station	Position		Ship's date	Ship's time	Length of wire run out (m)	Revolutions of flow meter	Volume of water filtered (m^3)	Displacement volume per 1000 m^3 (cc)	Wet weight per 1000 m^3 (gr)
23	Os 17	48–00 N	179–12 W	3	0310	150	1190	29.8	101	81
					0440	150	1208	30.3	66	99
24	Os 18	50–18 N	176–00 W	4	0237	150	1160	30.1	166	100
					0405	150	1156	28.9	138	104
25	Os 19	51–19 N	175–59 W	4	1110	150	1032	25.8	116	62
					1235	150	1496	37.4	107	70
26	Os 20	49–00 N	172–37 W	5	0950	150	1214	30.4	1301	1202
					1015	150	1178	29.4	408	275
27	Os 21	49–59 N	172–23 W	5	1645	150	2115	52.9	38	19
					1815	150	1166	29.2	103	65
28	Os 22	51–00 N	172–11 W	6	1218	150	1120	28.0	54	39
					1325	150	980	24.5	163	61
29	Os 23	51–50 N	172–00 W	6	2000	150	930	23.3	343	334
					2115	150	960	24.1	332	246
30	Os 24	53–00 N	171–59 W	7	1300	150	964	24.1	580	538
					1410	150	970	24.3	576	490
31	Os 25	53–50 N	172–00 W	7	2110	150	1065	26.6	376	256
					2235	150	986	24.7	263	178
32	Os 26	53–45 N	176–01 W	8	2012	150	1054	26.4	38	38
					2133	150	1114	27.9	322	232
33	Os 27	53–47 N	179–11 W	9	0905	150	1096	27.4	182	212
					1038	150	710	17.8	224	174
34	Os 28	52–50 N	179–11 W	9	1725	150	1175	29.4	340	272
					1836	150	1100	27.5	364	360
35	Os 29	52–01 N	179–11 W	10	1055	150	1009	24.9	200	169
					1215	150	1070	26.3	114	129
36	Os 30	53–00 N	175–59 E	11	1247	150	1386	34.1	410	364
					1400	150	1488	36.7	834	720
37	Os 31	52–56 N	171–51 E	13	0615	150	1013	24.9	84	84
					0730	150	1052	25.9	77	66
38	Os 32	52–07 N	169–35 E	13	1828	150	1080	26.6	75	34
					1950	150	1027	25.3	158	69
39	Os 33	51–13 N	167–16 E	14	2005	150	1170	28.7	109	101
					2121	150	698	17.2	174	98
40	Os 34	50–25 N	165–15 E	15	0703	150	1098	27.1	37	30
					0812	150	1058	26.1	42	38
41	Os 35	49–42 N	163–07 E	15	2003	150	1005	25.1	199	167
					2110	150	1008	25.2	159	107
42	Os 36	48–50 N	160–46 E	16	1617	150	957	24.9	80	68
					1724	150	987	24.7	243	150
43	Os 37	47–55 N	158–21 E	17	0502	150	1184	29.6	135	121
					0627	150	770	19.3	464	450

(Continued)

Individual number of important species				Individual number of organisms removed			Remarks
Calanus plumchrus	*Calanus cristatus*	Euphausiid	Amphipod	Squid larva	Jelly fish	Fish larva	
24	43	5	6		15		many *Eucalanus bungii* and small-sized copepods
30	2	0	4		12		many *Eucalanus bungii* and *Tomopteris*
120	7	9	30	1	4		many small-sized copepods
244	4	1	88		4		many *Eucalanus bungii*
0	4	108	0		15		many *Eucalanus bungii* and euphausiids
0	1	3	82	1	16		many *Eucalanus bungii*
4716	0	0	8		7		many *Calanus plumchrus*
960	0	1	20				many *Calanus plumchrus* and small-sized copepods
10	1	2	9	1	33		many *Eucalanus bungii*
110	2	2	8		10		many small-sized copepods
40	0	0	8		1		many *Eucalanus bungii*
380	0	1	8		2		〃
72	46	0	32		5		many young *Eucalanus* and *Metridia*
36	12	2	20		8		many *Metridia*
1392	136	0	0		5		many *Calanus plumchrus* and *Eucalanus bungii*
1376	184	0	8		5		many *Calanus plumchrus*
976	54	9	32		12		〃
66	80	21	5		4		many small-sized copepods
62	14	1	14				〃
540	32	3	28		1		〃
88	1	3	8		2		many diatoms
124	0	2	4		14		〃
644	36	0	128		1		many *Eucalanus bungii* and *Calanus plumchrus*
1104	13	0	36				〃
544	0	0	30				〃
29	27	2	38				many *Eucalanus bungii*
1008	25	5	36				many young *Eucalanus* and *Calanus plumchrus*
2016	116	2	44			1	〃
86	9	13	18		7		many young *Eucalanus*
41	10	0	25	2	2		〃
120	2	1	10		9		〃
35	2	1	9		5		many *Metridia*
29	2	18	61		8		many *Eucalanus bungii* and diatoms
0	4	5	92		16		many *Eucalanus bungii*
0	0	0	7		2		many *Eucalanus bungii* and diatoms
14	0	0	12		6		many *Eucalanus bungii*
6	0	5	3	2	1		many diatoms
8	1	1	6	1	8		many diatoms and small-sized copepods
0	1	0	10		21		〃
0	2	0	6		10		many diatoms
123	40	0	17		2		many *Eucalanus bungii*
200	396	2	19		11		many *Calanus cristatus*

11. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Collected with Vertical Hauls of Double Net

(二重ネット垂直採集によるプランクトン湿排水量及び湿重量記録)

A Double Net, consists of an outer net, 30cm × 150cm, made of bolting silk XX 13, having about 0.11mm of mesh size, and an inner net, 30cm × 100cm, made of bolting silk GG 26, having 1.01mm in mesh aperture, was hauled from the depth of nearly 100 m at each hydrographic station, so as to obtain the phyto- and zooplankton separately.

A current-meter was mounted at the center of mouth ring of the net to register the amount of water filtered.

Measurement of wet displacement volume was made with the aspiration filtering apparatus, and wet weight was measured on the samples left on the filter disc of the apparatus.

Measurement was made by the members of the Chair of Planktology of the University.

Table 6. Plankton volume data (Double Net : Outer, 30cm × 150cm, XX 13;

No. of station	Corresponding No. of hydrographic station	Position		Ship's date (1957)	Ship's time	Kind of net	Length of wire run out (m)	Revolutions of flow-meter
1		41-59 N	148-00 E	June 8	1130	G G 26 X X 13	100	1930
2		43-24 N	149-20 E	9	0300	G G 26 X X 13	100	1590
3		44-33 N	151-09 E	9	2150	G G 26 X X 13	100	1405
4		45-44 N	152-36 E	10	2030	G G 26 X X 13	100	1305
5		47-05 N	154-18 E	11	1010	G G 26 X X 13	100	714
6		48-12 N	156-36 E	11	2135	G G 26 X X 13	100	
7	Os 1	48-00 N	158-35 E	19	1235	G G 26 X X 13	100	970
8	Os 2	48-45 N	160-33 E	20	1533	G G 26 X X 13	100	1440
9	Os 3	49-35 N	162-45 E	21	1032	G G 26 X X 13	100	1284
10	Os 4	50-20 N	164-41 E	22	0412	G G 26 X X 13	100	1054
11	Os 5	51-14 N	167-16 E	22	2145	G G 26 X X 13	100	1010
12	Os 6	52-04 N	169-35 E	23	1930	G G 26 X X 13	100	987
13	Os 7	52-55 N	171-50 E	25	1320	G G 26 X X 13	100	955
14	Os 8	51-46 N	171-30 E	26	0140	G G 26 X X 13	100	1158
15	Os 9	50-37 N	171-12 E	26	1120	G G 26 X X 13	100	1203
16	Os 10	49-28 N	171-50 E	26	2202	G G 26 X X 13	100	810
17	Os 11	48-18 N	171-43 E	27	1327	G G 26 X X 13	100	744
18	Os 12	50-29 N	175-47 E	29	1010	G G 26 X X 13	100	906
19	Os 13	51-30 N	176-01 E	29	1840	G G 26 X X 13	100	953
20	Os 15	50-07 N	179-13 W	July 1	2316	G G 26 X X 13	100	993
21	Os 14	50-50 N	179-10 W	2	0545	G G 26 X X 13	100	1110
22	Os 16	49-08 N	179-10 W	2	1740	G G 26 X X 13	100	1370
23	Os 17	48-00 N	179-12 W	3	0320	G G 26 X X 13	100	1216
24	Os 18	50-18 N	176-00 W	4	0250	G G 26 X X 13	100	1100

Inner, 30cm × 100cm, GG 26) on 1957 cruise to Aleutian waters (Vertical haul)

Volume of water filtered (m^3)	Adjusted displacement volume per $1000m^3$ of water (cc)	Adjusted wet weight per $1000m^3$ of water (gr)	Removed before measurement		Remarks
			Squid	Jellyfish	
11.6	345 129	120 267		2	many *Calanus plumchrus* and *Eucalanus bungii*
9.6	208 104	260 52		8	many *Eucalanus bungii*
8.5	471 235	329 141		12	many *Calanus plumchrus*
7.9	380 380	481 139		3	many *Calanus plumchrus* and *C. cristatus*
4.3	697 233	279 47		3	many *Calanus plumchrus* and *C. cristatus*
	(308) (154)	(323) (15)		5	many *Calanus plumchrus* and *C. cristatus*
5.8	238 238	69 9			many *Calanus plumchrus*
8.7	115 115	58 58			many *Calanus plumchrus*
7.7	260 130	65 13		1	many *Eucalanus bungii*
6.4	156 156	31 16			many *Eucalanus bungii*
1.1	164 164	16 8		1	
5.9	678 170	170 220			many *Eucalanus bungii*
5.7	176 880	125 947		5	
7.0	143 143	143 257			many *Calanus plumchrus*
7.2	139 139	42 28		3	many *Calanus plumchrus*
4.9	202 202	10 100		1	many *Calanus plumchrus*
4.5	222 222	22 22		2	many *Eucalanus bungii*
5.5	182 182	56 9		7	many *Eucalanus bungii*
5.7	176 88	125 9			many *Calanus plumchrus*
6.0	167 84	183 8		3	many *Calanus plumchrus*
6.5	154 154	77 107		1	many *Eucalanus bungii* and *Calanus cristatus*
8.2	488 366	159 256		4	many *Sagitta*
7.3	137 137	27 54		7	
6.6	757 151	454 30		4	many *Calanus plumchrus*

Table 6.

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Kind of net	Length of wire run out (m)	Revolutions of flow-meter
25	Os 19	51–19 N 175–59 W	4	1120	G G 26 X X 13	100	820
26	Os 20	49–00 N 172–37 W	5	0900	G G 26 X X 13	100	1127
27	Os 21	49–59 N 172–23 W	5	1705	G G 26 X X 13	100	1223
28	Os 22	51–00 N 172–11 W	6	1220	G G 26 X X 13	100	805
29	Os 23	51–50 N 172–00 W	6	2008	G G 26 X X 13	100	954
30	Os 24	53–00 N 171–59 W	7	1310	G G 26 X X 13	100	728
31	Os 25	53–50 N 172–00 W	7	2115	G G 26 X X 13	100	850
32	Os 26	53–45 N 176–01 W	8	2020	G G 26 X X 13	100	1087
33	Os 27	53–47 N 179–11 W	9	0915	G G 26 X X 13	100	815
34	Os 28	52–50 N 179–11 W	9		G G 26 X X 13	100	965
35	Os 29	52–01 N 179–11 W	10	1105	G G 26 X X 13	100	810
36	Os 30	53–00 N 175–59 E	11	1237	G G 26 X X 13	100	1204
37	Os 31	52–56 N 171–51 E	13	0624	G G 26 X X 13	100	905
38	Os 32	52–07 N 169–35 E	13	1845	G G 26 X X 13	100	755
39	Os 33	51–13 N 167–16 E	14	2015	G G 26 X X 13	100	1015
40	Os 34	50–25 N 165–15 E	15	0710	G G 26 X X 13	100	856
41	Os 35	49–42 N 163–07 E	15	2012	G G 26 X X 13	100	885
42	Os 36	48–50 N 160–46 E	16	1625	G G 26 X X 13	100	746
43	Os 37	47–55 N 158–21 E	17	0512	G G 26 X X 13	100	1042

(Continued)

Volume of water filtered (m^3)	Adjusted displacement volume per $1000m^3$ of water (cc)	Adjusted wet weight per $1000m^3$ of water (gr)	Removed before measurement		Remarks
			Squid	Jellyfish	
4.9	202 202	102 61		4	many *Eucalanus bungii* and *Themisto*
6.8	147 147	132 44			many *Calanus plumchrus*
7.4	135 135	41 14		9	many *Eucalanus bungii*
4.6	217 217	65 43		1	many *Calanus plumchrus*
5.7	275 138	176 70			many *Calanus plumchrus* and *Eucalanus bungii*
4.4	1477 227	750 45			many *Calanus plumchrus* and *C. cristatus*
5.1	196 196	157 39		3	many *Calanus plumchrus*
6.5	304 152	246 46		2	many *Calanus plumchrus*
4.9	202 202	82 11		7	many diatoms and young *Eucalanus*
5.8	343 172	224 17			many young *Eucalauns* and *Calanus plumchrus*
4.9	404 202	220 41			many *Calanus plumchrus*
7.3	411 137	192 41		2	many young *Eucalanus, Calanus plumchrus* and *C. cristatus*
5.4	185 185	74 19			many *Eucalanus bungii* and *Calanus plumchrus*
4.5	222 222	67 22			many *Calanus plumchrus*
6.1	164 246	49 147	2	3	
5.2	192 192	19 19	1	4	many *Eucalanus bungii*
5.3	189 189	38 114	1	4	many diatoms and 2 *Tomopteris*
4.5	222 222	89 67		5	
6.3	238 159	127 16			many *Calanus cristatus*

12. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Collected with Horizontal Tows of Double Net

（二重ネット水平採集によるプランクトン湿排水量及び湿重量記録）

A Double Net, identical with that described in the explanation of the preceding table, was towed just below the sea surface at a speed of about 2 knots during ten minutes, daily at sunset as well as at the time of the hydrographic cast held at night.

The current-meter did not work well, so that the present data shown only represents the actual value of plankton volume obtained by ten minutes tow.

Measurement of wet displacement volume was made with aspiration filtering apparatus, and wet weight was measured on the samples retained on the filter disc of the apparatus.

Measurement was made by the members of the Chair of Planktology of the University.

Table 7. Plankton volume data (Double Net : Outer, 30cm × 150cm, XX 13;

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Kind of net	Time of tow (minute)
1		42-00 N 145-54 E	June 7	1845	G G 26 X X 13	10
2		42-41 N 148-48 E	8	1840	G G 26 X X 13	10
3		43-24 N 149-20 E	9	0328	G G 26 X X 13	10
4		44-33 N 151-09 E	9	1952	G G 26 X X 13	10
5		45-44 N 152-36 E	10	1830	G G 26 X X 13	10
6		48-12 N 156-36 E	11	2009	G G 26 X X 13	10
7		42-14 N 145-08 E	15	1855	G G 26 X X 13	10
8		43-49 N 148-49 E	16	1840	G G 26 X X 13	10
9		45-45 N 153-13 E	17	1938	G G 26 X X 13	10
10		47-40 N 157-56 E	18	1933	G G 26 X X 13	10
11		48-24 N 159-38 E	19	1949	G G 26 X X 13	10
12		50-06 N 163-52 E	21	1915	G G 26 X X 13	10
13	Os 4	50-20 N 164-41 E	22	0449	G G 26 X X 13	10
14		51-14 N 164-16 E	22	2012	G G 26 X X 13	10
15		52-04 N 169-35 E	23	2046	G G 26 X X 13	10
16		52-21 N 171-50 E	25	1953	G G 26 X X 13	10
17	Os 8	51-46 N 171-30 E	26	0200	G G 26 X X 13	10
18	Os 10	49-28 N 171-50 E	26	2024	G G 26 X X 13	10
19		48-51 N 172-44 E	27	2023	G G 26 X X 13	10
20		50-19 N 175-36 E	28	2001	G G 26 X X 13	10
21	Os 13	51-30 N 176-01 E	29	1902	G G 26 X X 13	10
22		50-12 N 179-42 W	July 1	2018	G G 26 X X 13	10
23	Os 15	50-07 N 179-13 W	2	0040	G G 26 X X 13	10
24	Os 16	49-08 N 179-10 W	2	1910	G G 26 X X 13	10

Inner, 30cm × 100cm, GG 26) on 1957 cruise to Aleutian waters (Horizontal tow)

Displacement volume of total samples in a tow (cc)	Wet weight of total samples in a tow (gr)	Removed before measurement		Remarks
		Squid	Jellyfish	
4	1.3		2	
10	8.6			many diatoms
2	1.7		60	many *Aglantha* and *Themisto*
2	1.1			
1.5	0.7		23	many *Aglantha* and *Calanus plumchrus*
5	2.7			
2	1.8		25	many *Aglantha* and *Themisto*
1	2.5		8	
1	0.9		3	many *Calanus plumchrus*
4	4.7			
4	3.6			many *Calanus plumchrus* and *Themisto*
2	2.4			
1	0.2		2	many *Themisto*
1	1			
1	0.2		1	many *Eucalanus bungii*
1	0.7			
2	1		8	many *Calanus plumchrus*
3	0.6			
1.5	1			many *Calanus plumchrus*
1	0.3			
2	0.6			many *Themisto* and *Calanus plumchrus*
1	0.1			
1	0.05	2	3	
2	0.7			
1	0.05	2		
1	0.5			
1	0.1	3	1	
1	0.1			
1	0.1			many *Calanus plumchrus*
3	4.8			
1	0.1		7	many *Eucalanus bungii*
7	7.8			
2	0.8		5	many *Eucalanus bungii* and diatoms
1	0.4		2	many *Tomopteris*
2	1.1			
1	0.2			many *Tomopteris*
1	0.1			
1	0.8			many *Tomopteris*
1	0.6			
18	19.0			many *Calanus plumchrus* and *Themisto*
1	0.5			
1	0.8			
1	0.8			
1	0.6		4	
1	0.05			
1	0.5		2	many *Calanns plumchrus* and *Eucalanus bungii*
4	7.3			

Table 7.

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Kind of net	Time of tow (minute)
25		49-24 N 176-33 W	3	1953	G G 26 X X 13	10
26		50-30 N 174-49 W	4	1949	G G 26 X X 13	10
27	Os 21	49-59 N 172-23 W	5	1954	G G 26 X X 13	10
28	Os 23	51-50 N 172-00 W	6	1939	G G 26 X X 13	10
29	Os 25	53-50 N 172-00 W	7	2009	G G 26 X X 13	10
30	Os 26	53-45 N 176-01 W	8	1953	G G 26 X X 13	10
31	Os 28	52-50 N 179-11 W	9	2011	G G 26 X X 13	10
32		52-32 N 179-25 E	10	2022	G G 26 X X 13	10
33		53-06 N 174-54 E	11	1947	G G 26 X X 13	10
34		53-07 N 173-06 E	12	1935	G G 26 X X 13	10
35	Os 32	52-07 N 169-35 E	13	2044	G G 26 X X 13	10
36	Os 33	51-13 N 167-16 E	14	1952	G G 26 X X 13	10
37	Os 35	49-42 N 163-07 E	15	1942	G G 26 X X 13	10
38	(Os 36)	48-41 N 160-22 E	16	1913	G G 26 X X 13	10
39		46-48 N 155-47 E	17	1928	G G 26 X X 13	10
40		44-43 N 151-00 E	18	1936	G G 26 X X 13	10
41		42-49 N 146-49 E	19	1947	G G 26 X X 13	10

(Continued)

Displacement volume of total samples in a tow (cc)	Wet weight of total samples in a tow (gr)	Removed before measurement		Remarks
		Squid	Jellyfish	
3 3	2.7 3		22	many *Calanus plumchrus*, *Themisto*, squid larvae and *Aglantha*
7 2	4 1.9			many *Calanus plumchrus* and *Themisto*
1 3	0.4 3.2			many *Eucalanus bungii*
1 7	0.2 3.2			many *Themisto*
1.5 1	0.4 0.3	2	2	many *Themisto*
5 3	4.3 2.5	5	2	many *Themisto* and *Calanus plumchrus*
4.5 2	3.4 2.1			many *Themisto* and *Calanus plumchrus*
7 2	5 1.5		1	many *Themisto* and *Calanus plumchrus*
10 8	8.1 7.9			many diatoms
6 4	6 2.3			many *Calanus plumchrus*
1 1	0.5 0.5	2	2	many *Calanus plumchrus* and *Themisto*
1 1	0.3 1			many *Themisto*
2 1	1.3 1.3		12	many diatoms
2 2	2 0.6			many *Themisto*
3 1.5	2.2 1		1	many *Themisto* and *Calanus plumchrus*
11 5	7 5			
1 2.5	0.2 2.2		1	many *Calanus plumchrus*

13. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Taken with Fine Mesh Net

（細目ネット採集によるプランクトン湿排水量及び湿重量記録）

A conical net, 30cm × 150cm, made of bolting silk XX 13, having about 0.11mm of mesh aperture, was hauled from approximately 100m to the surface at every hydrographic station.

A current-meter was set at the center of the mouth ring of the net to register the amount of water filtered by the net.

Measurement was made by the planktologists of the Hokkaido Regional Fisheries Research Laboratory.

Table 8. Plankton volume data (30cm × 150cm,

No. of station	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Length of wire run out (m)	Revolutions of flow-meter	Volume of water filtered (m^3)	Displacement volume per $1000m^3$(cc)	Wet weight per $1000m^3$ (gr)
1		41-59N 148-00E	June 8	11:30	100	1360	8.197	243.9	158.5
2		43-24N 149-20E	9	03:00	〃	1380	8.289	603.2	357.0
3		44-33N 151-09E	9	22:00	〃	1220	7.347	272.2	255.8
4		45-44N 152-36E	10	20:35	〃	1130	6.782	294.8	296.2
5		47-05N 154-18E	11	10:10	〃	664	3.987	125.4	100.3
6		48-12N 156-36E	11	21:50	〃				
7	Os 1	48-00N 158-35E	19	12:47	〃	1090	6.562	152.3	167.6
8	Os 2	48-45N 160-33E	20	15:45	〃	1433	8.635	115.8	81.0
9	Os 3	49-35N 162-45E	21	10:45	〃	1510	9.074	165.3	77.1
10	Os 4	50-20N 164-41E	22	04:30	〃	1070	6.437	31.0	124.2
11	Os 5	51-14N 167-16E	22	21:52	〃	1030	6.204	80.5	128.9
12	Os 6	52-04N 169-35E	23	19:40	〃	1214	7.316	164.0	246.0
13	Os 7	52-55N 171-50E	25	15:25	〃	970	5.840	2825.3	1250.0
14	Os 8	51-46N 171-30E	26	01:53	〃	1265	7.598	2724.4	921.2
15	Os 9	50-37N 171-12E	26	11:30	〃	945	5.683	87.9	35.1
16	Os 10	49-28N 171-50E	26	22:10	〃	910	5.463	274.5	109.8
17	Os 11	48-18N 171-43E	27	13:36	〃	723	4.333	270.4	46.1
18	Os 12	50-29N 175-47E	29	10:15	〃	924	5.557	89.9	71.9
19	Os 13	51-30N 176-01E	29	18:50	〃	1000	5.997	166.7	216.7
20	Os 15	50-07N 179-13W	July 1	23:21	〃	956	5.746	174.0	248.8
21	Os 14	50-50N 179-10W	2	05:55	〃	1060	6.374	31.3	125.5
22	Os 16	49-08N 179-10W	2	17:48	〃	1130	6.185	1843.1	371.8
23	Os 17	48-00N 179-12W	3	03:27	〃	1366	8.226	243.1	60.7
24	Os 18	50-18N 176-00W	4	02:57	〃	1126	6.782	221.1	308.1
25	Os 19	51-19N 175-59W	4	11:25	〃	820	4.929	81.1	142.0

XX 13) on 1957 cruise to Aleutian waters

Dominant species (%)						Remarks
Ch. curvisetus	(42.0)	***Ch. concavicornis***	(12.9)	***Rh. hebetata***	(8.3)	*C. cristatus* 10; microcopepods
Thal'ra Nordenskiöldii	(22.0)	***Ch. radicans***	(15.4)	***Ch. concavicornis***	(11.4)	*Euphausia pacifica* 3; *C. cristatus; C. plumchrus*
Rh. hebetata	(32.4)	***Ch. concavicornis***	(31.6)	***Ch. convolutus***	(12.8)	*Metridia, Eucalanus* and *Sagitta* rr
Rh. hebetata	(58.0)	***Fragilaria*** sp.	(16.0)	***Th'rix longissima***	(5.9)	
Fragilaria sp.	(78.6)	***Ch. atlanticus***	(8.5)	***Th'rix longissima***	(5.2)	*C. cristatus* 9; microcopepods rr
Fragilaria sp.	(67.0)	***Ch. atlanticus***	(10.1)	***Th'rix longissima***	(9.1)	
Copepods	(66.8)	***Peridinium***	(8.3)	***Th'rix longissima***	(8.3)	*C. cristatus, C. plumchrus* microcopepods rr
Copepods	(79.2)	***Fragilaria*** sp.	(5.2)	***Ch. concavicornis*** ***Rh. hebetata, Th'rix longissima***	(3.5)	*C. plumchrus* and others rr
Ch. concavicornis	(31.5)	***Ch. convolutus***	(28.5)	Copepods	(11.9)	*Eucalanus, C. plumchrus* rr
Ch. concavicornis	(74.1)	***Th'rix longissima***	(7.0)	***Ch. convolutus***	(4.2)	*Thysanoessa* sp. 2
Copepods	(75.3)	***Ch. concavicornis***	(4.7)	***Ceratium fusus***	(4.7)	mysis 12; *Aglantha* 2
Nitzschia seriata	(35.7)	***Ch. concavicornis***	(26.0)	***Ch. convolutus***	(12.8)	
Nitzschia seriata	(29.8)	***Ch. curvisetus***	(21.2)	***Ch. convolutus***	(7.2)	
Ch. concavicornis	(32.8)	***Nitzschia seriata***	(27.9)	***Th'rix longissima***	(27.0)	
Ch. concavicornis	(19.4)	***Ch. convolutus***	(18.4)	***Denticula*** sp.	(15.8)	
Ch. concavicornis	(34.1)	***Nitzschia seriata***	(22.7)	***Ch. convolutus***	(20.0)	
Ch. concavicornis	(60.0)	***Ch. convolutus***	(20.1)	***Nitzschia seriata***	(6.7)	
Nitzschia seriata	(44.2)	***Th'rix longissima***	(19.3)	***Ch. concavicornis***	(6.5)	
Ch. atlanticus	(55.8)	***Rh. alata***	(13.8)	***Rh. hebetata***	(9.9)	*C. plumchrus*, microcopepods r
Copepods	(92.8)	***Th'rix longissima***	(2.4)	***Rh. hebetata***	(2.4)	*C. plumchrus, Metridia lucens* r, *Aglantha* 2
Ch. atlanticus	(34.9)	***Rh. alata***	(17.6)	***Th'rix longissima***	(10.7)	
Nitzschia seriata	(66.7)	***Ch. convolutus***	(13.5)	***Th'rix longissima***	(4.8)	*Euphausia* l, *Sagitta* spp. rr
Copepods	(39.4)	***Th'rix longissima***	(23.4)	***Nitzschia seriata***	(22.1)	microcopepods r, *Euphausia* sp. 21
Ch. atlanticus	(66.5)	***Th'rix longissima***	(13.3)	***Rh. alata***	(3.0)	*C. plumchrus*, microcopepods rr, *Thysanoessa longipes* 2
Nitzschia seriata	(47.7)	***Ch. convolutus***	(17.0)	***Ch. concavicornis***	(12.9)	*Calanus* spp. rr

Table 8.

No. of station	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Length of wire run out (m)	Revolutions of flow-meter	Volume of water filtered (m^3)	Displacement volume per $1000m^3$(cc)	Wet weight per $1000m^3$ (gr)
26	Os 20	49-00N 172-32W	5	09:07	〃	1222	7.347	748.6	639.7
27	Os 21	49-59N 172-23W	5	17:15	〃	1460	8.792	170.5	61.4
28	Os 22	51-00N 172-11W	6	12:25	〃	880	5.275	139.7	151.6
29	Os 23	51-50N 172-00W	6	20:15	〃	858	5.149	194.2	310.7
30	Os 24	53-00N 171-59W	7	13:15	〃	720	4.333	923.1	916.3
31	Os 25	53-50N 172-00W	7	21:25	〃	795	4.772	1047.7	857.0
32	Os 26	53-45N 176-01W	8	20:28	〃	817	4.898	1633.3	1198.4
33	Os 27	53-47N 179-11W	9	09:20	〃	784	4.710	424.6	335.4
34	Os 28	52-50N 179-11W	9	17:40	〃	1100	6.625	30.1	241.5
35	Os 29	52-01N 179-11W	10	11:12	〃	800	4.804	124.8	124.8
36	Os 30	53-00N 175-59E	11	12:40	〃	1470	8.854	169.4	45.1
37	Os 31	52-56N 171-51E	13	06:31	〃	950	5.714	175.0	140.0
38	Os 32	52-07N 169-35E	13	18:50	〃	944	5.683	175.9	140.7
39	Os 33	51-13N 167-16E	14	20:22	〃	957	5.746	87.1	165.3
40	Os 34	50-25N 165-15E	15	07:17	〃	856	5.149		
41	Os 35	49-42N 163-07E	15	20:18	〃	760	4.553		
42	Os 36	48-50N 160-46E	16	16:29	〃	680	4.082	612.4	195.9
43	Os 37	47-55N 158-21E	17	05:18	〃	997	5.997	133.4	266.8

(Continued)

Dominant species (%)						Remarks
Ch. atlanticus	(73.9)	*Th'rix longissima*	(6.6)	*Parafevalla* sp.	(6.1)	*C. plumchrus* abundant
Nitzschia seriata	(50.0)	*Ch. convolutus*	(9.1)	*Ch. atlanticus*	(8.1)	
Corethron sp.	(26.8)	*Ch. concavicornis*	(13.4)	*Denticula* sp.	(11.2)	*C. plumchrus* abundant
Rh. alata	(65.4)	*Nitzschia seriata*	(13.3)	*Rh. hebetata*	(8.1)	*C. plumchrus* and microcopepods rr
Ch. atlanticus	(61.8)	*Th'rix longissima*	(17.4)	*Rh. alata*	(6.8)	*C. plumchrus* abundant
Ch. atlanticus	(30.4)	*Th'rix longissima*	(23.2)	*Fh. alata*	(13.0)	*C. plumchrus* abundant
Th'rix longissima	(63.8)	*Rh. alata*	(14.7)	*Ch. atlanticus*	(13.9)	*C. plumchrus* abundant
Ch. atlanticus	(42.8)	*Th'rix longissima*	(37.4)	*Denticula* sp.	(5.9)	
Ch. atlanticus	(67.0)	*Rh. alata*	(8.3)	*Th'rix longissima*	(8.3)	*C. plumchrus, Themisto* rr
Ch. atlanticus	(65.8)	*Rh. alata*	(8.4)	*Th'rix longissima*	(7.2)	
Ch. atlanticus	(50.0)	*Th'rix longissima*	(38.2)	Copepods	(5.0)	
Ch. convolutus	(22.1)	*Ch. atlanticus*	(21.2)	*Nitzschia seriata*	(19.0)	*C. plumchrus*, microcopepods rr
Nitzschia seriata	(22.9)	Copepods	(20.3)	*Ch. atlanticus*	(15.9)	Squid larva 1; *C. plumchrus* rr
Nitzschia seriata	(64.3)	*Ch. concavicornis*	(15.9)	*Th'rix longissima*	(7.0)	*Euphausia* spp. 3, microcopepods rr
Ch. concavicornis	(36.4)	*Nitzschia seriata*	(28.5)	*Ch. convolutus*	(14.5)	
Th'rix longissima	(72.4)	*Nitzschia seriata*	(23.6)	*Ch. concavicornis*	(1.6)	
				Denticula sp.	(1.6)	
Nitzschia seriata	(38.6)	*Ch. concavicornis*	(21.3)	*Ch. convolutus*	(16.3)	
Copepods	(46.8)	*Th'rix longissima*	(10.6)	*Ch. concavicornis*	(8.7)	*Calanus cristatus*, *C. plumchrus* rr

14. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Collected with Fish Larva Net

（稚魚ネット採集によるプランクトン湿排水量及び湿重量記録）

Fish larva net, 130cm × 450cm, was towed at a speed of about 2 knots during ten minutes, exposing half the area of mouth part above the sea surface. Because of the inconstancy in such operation as well as because the net was not provided with any type of current-meter, the data given here represent only the relative abundance of the catches in a tow.

Wet displacement of samples was measured with aspiration filtering apparatus, and the wet weight weighing was carried out on the materia's left on the filtering disc of the apparatus.

Measurement was made by the members of the Chair of Planktology of the University.

Table 9. Plankton volume data (Fish-larva Net) on 1957 cruise to Aleutian

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Displacement volume of total samples in a tow (cc)	Wet weight of total samples in a tow (gr)
1		42-00 N 145-54 E	June 7	1845	75	88
2		42-41 N 148-48 E	8	1840	52	49.8
3		43-24 N 149-20 E	9	0328	80	65.0
4		44-33 N 151-09 E	10	1952	14	10
5		45-44 N 152-36 E	10	1830	50	40
6		47-05 N 154-18 E	11	1023	5	2
7		48-12 N 156-36 E	11	2009	150	70.5
8		42-14 N 145-08 E	15	1855	15	11.5
9		43-49 N 148-49 E	16	1840	28	25.4
10		45-45 N 153-13 E	17	1938	60	39.5
11		47-10 N 157-56 E	18	1933	70	55.0
12	Os 1	48-00 N 158-35 E	19	1310	18	14.4
13		48-24 N 159-38 E	19	1949	50	4.3
14	Os 2	48-45 N 165-33 E	20	1604	4	1
15	Os 3	49-35 N 162-45 E	21	1104	1	0.3
16		50-06 N 163-52 E	21	1915	10	9
17	Os 4	50-20 N 164-41 E	22	0449	5	4
18	Os 5	51-14 N 167-16 E	22	2012	25	3.4
19	Os 6	52-04 N 169-35 E	23	2046	27.5	25.5
20		52-21 N 171-50 E	25	1953	60	5.2
21	Os 8	51-46 N 171-30 E	26	0200	50	75
22	Os 9	50-37 N 171-12 E	26	1150	7	5.6
23		49-28 N 171-50 E	26	2024	30	21.5
24	Os 11	48-18 N 171-43 E	27	1350	10	12
25		45-51 N 172-44 E	27	2023	5	5.5
26		50-19 N 175-36 E	28	2001	15	13.5
27	Os 12	50-29 N 175-47 E	29	1027	3	2.1
28	Os 13	51-30 N 176-01 E	29	1902	100	86
29		50-12 N 179-42 W	July 1	2018	8	7.6
30	Os 15	50-07 N 179-13 W	2	0040	14	10.5
31	Os 14	50-50 N 179-10 W	2	0713	20	20
32	Os 16	49-08 N 179-10 W	2	1910	20	20
33	Os 17	48-00 N 179-12 W	3	0448	2	2.1
34		49-24 N 176-03 W	3	1953	100	82
35	Os 18	50-18 N 176-00 W	4	0417	42	41.3

waters

Removed before measurement		Remarks
Squid	Jellyfish	
1	70	many ***Eucalanus bungii*** and ***Themisto***
	400	many ***Themisto*** and small-sized copepods
	890	many ***Eucalanus bungii, Sagitta, Aglantha*** and small-sized copepods
3	271	many diatoms, ***Themisto, Sagitta, Eucalanus bungii*** and squid larvae
1	1	many diatoms and ***Eucalanus bungii***
		many diatoms and small-sized copepods
	1	many ***Themisto, Sagitta*** and ***Calanus plumchrus***
	98	many small-sized copepods, ***Themisto***
1	150	many ***Themisto, Eucalanus*** and small-sized copepods
1	467	many diatoms and ***Eucalanus bungii***
	1	many ***Themisto, Sagitta*** and ***Calanus plumchrus***
		many ***Calanus plumchrus***
2	1	many ***Calanus plumchrus*** and ***Themisto***
	1	many diatoms and ***Sagitta***
	1	many diatoms
		many diatoms and ***Eucalanus bungii***
		many diatoms
3		many ***Themisto, Calanus plumchrus***, squid larvae and ***Limacina***
2	10	many diatoms, ***Themisto*** and squid larvae
3	21	many squid larvae and diatoms
12	6	many diatoms
1	66	〃
		many diatoms and squid larvae
	42	many diatoms
2	1	many diatoms and squid larvae
	1	many ***Themisto*** and squid larvae
4	4	many diatoms and squid larvae
2		many ***Calanus plumchrus*** and ***Themisto***
		many squid larvae and ***Limacina***
5		many euphausiids, squid larvae and ***Themisto***
9	184	many diatoms
		many diatoms and ***Themisto***
2	7	many small-sized copepods
9	112	many ***Themisto***, squid larvae and small-sized copepods
1		many ***Themisto*** and squid larvae

Table 9.

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Displacement volume of total samples in a tow (cc)	Wet weight of total samples in a tow (gr)
36	Os 19	51-19 N 175-59 W	4	1236	7	9.1
37		50-30 N 174-19 W	4	1949	56	53.9
38	Os 20	49-00 N 172-37 W	5	1024	17.5	9
39	Os 21	49-59 N 172-23 W	5	1954	40	45
40	Os 22	51-00 N 172-11 W	6	1334	5	7
41	Os 23	51-50 N 172-00 W	6	1939	40	26
42	Os 24	53-00 N 171-59 W	7	1426	7.5	6.5
43	Os 25	53-50 N 172-00 W	7	2009	20	25
44	Os 26	53-15 N 176-01 W	8	1953	60	55
45	Os 27	53-47 N 179-11 W	9	1048	14	14
46	Os 28	52-51 N 179-13 W	9	2011	42	52.5
47	Os 29	52-01 N 179-11 W	10	1224	3	2.7
48		52-32 N 179-25 E	10	2022	80	87
49	Os 30	53-00 N 175-59 E	11	1414	20	22
50		53-06 N 174-54 E	11	1947	55	54
51		53-07 N 173-06 E	12	1935	160	155
52		53-07 N 173-06 E	12	2157	70	55.3
53	Os 31	52-56 N 171-51 E	13	0737	2.5	22.5
54	Os 32	52-07 N 169-35 E	13	2044	160	139
55	Os 33	51-13 N 167-16 E	14	1950	10	19.5
56	Os 34	50-25 N 165-15 E	15	0822	10	10
57	Os 35	49-42 N 163-07 E	15	1942	34	35.8
58	(Os 36)	48-41 N 160-22 E	16	1913	70	76.5
59	Os 37	47-55 N 158-21 E	17	0637	35	33
60		46-48 N 155-47 E	17	1928	10	18.5
61		44-43 N 151-00 E	18	1936	60	61
62		42-49 N 146-49 E	19	1947	20	20

(Continued)

Removed before measurement		Remarks
Squid	Jellyfish	
		many diatoms and squid larvae
22		many *Themisto*, squid larvae and small-sized copepods
		many diatoms and small-sized copepods
77	2	many squid larvae and diatoms
13		many squid larvae
	3	many diatoms
	1	〃
	187	many *Themisto* and *Aglantha*
	44	〃
	6	many diatoms
	3	many *Calanus plumchrus* and *Themisto*
	3	many diatoms
	7	many *Calanus plumchrus* and *Themisto*
		many diatoms and *Calanus plumchrus*
	1	many diatoms and squid larvae
1		many *Calanus plumchrus*
24	90	many small-sized copepods, *Aglantha* and squid larvae
		many small *Themisto*
9	14	many *Themisto*
6	1	many diatoms and *Themisto*
		many diatoms
2	707	many *Aglantha* and diatoms
2	2	many *Themisto* and squid larvae
		many *Calanus plumchrus*
	6	many diatoms and small *Themisto*
	4	many diatoms
	41	many small-sized copepods

15. Data on Fish Larvae Collected with Fish Larva Net
(稚魚ネット採集による稚魚記録)

Fish larva net, 130cm in mouth diameter and 450cm in length, was towed in the surface layer at a speed as low as about 2 knots for ten minutes keeping the net exposed to the extent of half of mouth ring above the sea surface.

Identification of fish larvae was made by Shin-ichi Sato and Kiyu Kobayashi.

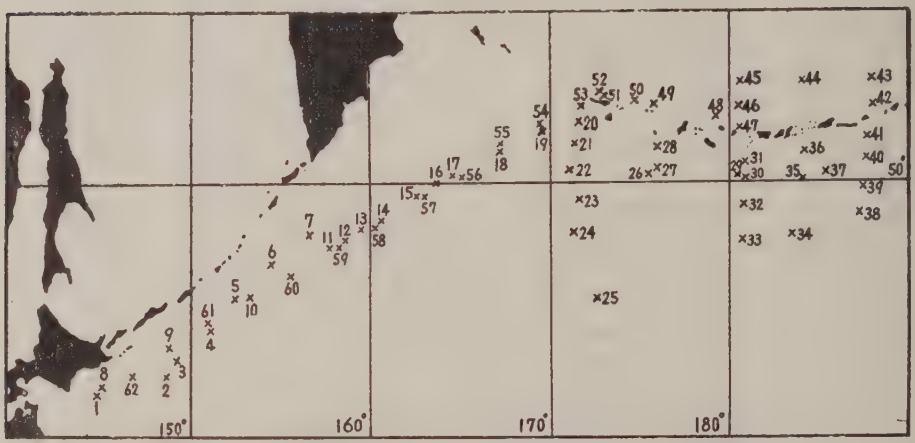

Fig. 5 Stations of fish-larva net tow on 1957 cruise of the "Oshoro Maru"

Table 10. Data on collection of fish larvae on 1957 cruise to Aleutian waters

No. of Collection	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals
1		42°-00′ N 145°-54′ E	June 7	1845	*Hexagrammos*	1
					Hemilepidotus (a)	9
2		42°-41′ N 148°-48′ E	8	1840	*Hexagrammos*	1
					Hemilepidotus (a)	8
3		43°-24′ N 149°-20′ E	9	0328	*Hemilepidotus* (a)	8
4		44°-33′ N 151°-09′ E	〃	1952	*Hexagrammos*	1
					Hemilepidotus (a)	28
5		45°-44′ N 152°-36′ E	10	1830	*Lumpenus*	1
					Pleurogrammus monopterygius (PALLAS)	2
					Hemilepidotus (a)	3
6		47°-05′ N 154°-18′ E	11	1023	*Pleurogrammus monopterygius* (PALLAS)	1
7		48°-12′ N 156°-36′ E	〃	2009	*Hemilepidotus* (a)	15
					Unidentified (d)	1
8		42°-14′ N 145°-08′ E	15	1855	*Ammodytes hexapterus* (PALLAS)	1
					Cottinae	1
9		43°-49′ N 148°-49′ E	16	1840	*Lumpenus*	2
10		45°-45′ N 153°-13′ E	17	1938	*Lumpenus*	38
					Hemilepidotus	5
11		47°-40′ N 157°-56′ E	18	1933	Unidentified (a)	5
12	1	48°-00′ N 158°-35′ E	19	1310	*Hexagrammos*	1
13		48°-24′ N 159°-38′ E	〃	1949	*Hemilepidotus* (a)	13
					Unidentified (c)	3
					Unidentified (d)	12
14	2	48°-45′ N 160°-33′ E	20	1604	*Pleurogrammus monopterygius* (PALLAS)	3
					Hemilepidotus (a)	3
					Unidentified (a)	2
15	3	49°-35′ N 162°-45′ E	21	1104	No fish-larva	
16		50°-06′ N 163°-52′ E	〃	1915	*Pleurogrammus monopterygius* (PALLAS)	11
					Hexagrammos	1
					Hemilepidotus (a)	1
17	4	50°-20′ N 164°-41′ E	22	0449	*Pleurogrammus monopterygius* (PALLAS)	5
					Hemilepidotus (a)	1
18	5	51°-14′ N 167°-16′ E	〃	2012	*Pleurogrammus monopterygius* (PALLAS)	1
					Hemilepidotus (c)	4
19	6	52°-04′ N 169°-35′ E	23	2046	*Ammodytes hexapterus* PALLAS	1
					Lumpenus	7
					Anoplopoma fimbria (PALLAS)	1
					Hemilepidotus (a)	8
					Hemilepidotus (c)	2
					Cottinae	1
					Unidentified (b)	9

Table 10. (Continued)

No. of Collection	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals
					Unidentified (f)	5
20		52°-21′ N 171°-50′ E	25	1953	*Lumpenus*	4
					Hexagrammos	5
					Hemilepidotus (c)	5
					Unidentified (a)	8
21	8	51°-46′ N 171°-30′ E	26	0200	*Lumpenus*	5
					Pleurogrammus monopterygius (PALLAS)	5
					Hemilepidotus (a)	5
					Cottinae	1
22	9	50°-37′ N 171°-12′ E	〃	1150	*Pleurogrammus monopterygius* (PALLAS)	1
					Hexagrammos	4
23		49°-28′ N 171°-50′ E	〃	2024	*Lumpenus*	1
					Hexagrammos	1
					Hemilepidotus (c)	9
					Unidentified (a)	2
24	11	48°-18′ N 171°-43′ E	27	1350	*Hexagrammos*	1
25		45°-51′ N 172°-44′ E	27	2023	*Hexagrammos*	2
					Hemilepidotus (c)	1
26		50°-19′ N 175°-36′ E	28	2001	*Hexagrammos*	2
					Hemilepidotus (a)	2
					Hemilepidotus (b)	7
					Hemilepidotus (c)	1
27	12	50°-29′ N 175°-47′ E	29	1027	No fish-larva	
28	13	51°-30′ N 176°-01′ E	29	1902	Unidetified (b)	1
29		50°-12′ N 179°-42′ W	July 1	2018	*Hexagrammos*	1
					Hemilepidotus (c)	3
30	15	50°-07′ N 179°-13′ W	2	0040	*Tarletonbeania* (a)	1
					Tarletonbeania (b)	3
					Hemilepidotus (b)	2
					Hemilepidotus (c)	1
31	14	50°-50′ N 179°-10′ W	〃	0713	*Hexagrammos*	2
32	16	49°-08′ N 179°-10′ W	〃	1910	*Anoplopoma fimbria* (PALLAS)	1
33	17	48°-00′ N 179°-12′ W	3	0448	*Hexagrammos*	1
34		49°-24′ N 176°-33′ W	〃	1953	*Hexagrammos*	3
35	18	50°-18′ N 176°-00′ W	4	0417	*Anoplopoma fimbria* (PALLAS)	1
					Hexagrammos	4
36	19	51°-19′ N 175°-59′ W	〃	1236	*Hexagrammos*	4
37		50°-30′ N 174°-49′ W	〃	1949	*Hexagrammos*	3
					Hemilepidotus (b)	2
38	20	49°-00′ N 172°-37′ W	5	1024	No fish-larva	
39	21	49°-59′ N 172°-23′ W	〃	1954	*Hexagrammos*	1

Table 10. (Continued)

No. of Collection	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals
40	22	51°-00′ N 172°-11′ W	6	1334	***Hexagrammos***	1
41	23	51°-50′ N 172°-00′ W	〃	1939	Unidentified (b)	1
					Fish sggs	7
42	24	53°-00′ N 171°-59′ W	7	1426	No fish-larva	
43	25	53°-50′ N 172°-00′ W	〃	2009	***Ammodytes hexapterus*** PALLAS	1
					Lumpenus	1
					Hexagrammos	1
					Unidentified (a)	35
44	26	53°-45′ N 176°-01′ W	8	1953	***Lumpenus***	3
					Anoplopoma fimbria (PALLAS)	1
					Hexagrammos	4
45	27	53°-47′ N 179°-11′ W	9	1048	***Anoplopoma fimbria*** (PALLAS)	4
					Hexagrammos	2
					Unidentified (a)	7
46	28	52°-51′ N 179°-13′ W	〃	2011	***Anoplopoma fimbria*** (PALLAS)	1
					Hexagrammos	4
					Unidentified (a)	12
					Unidentified (f)	1
					Fish egg	1
47	29	52°-01′ N 179°-11′ W	10	1224	Unidentified (a)	1
48		52°-32′ N 179°-25′ E	〃	2022	***Ammodytes hexapterus*** PALLAS	3
					Lumpenus	2
					Anoplopoma fimbria(PALLAS)	2
					Cottinae	1
					Unidentified (a)	2
					Fish eggs	25
49	30	53°-00′ N 175°-59′ E	11	1414	***Ammodytes hexapterus*** PALLAS	1
					Anoplopoma fimbria (PALLAS)	1
					Unidentified (a)	1
					Unidentified (f)	4
					Fish egg	1
50		53°-06′ N 174°-54′ E	〃	1947	***Ammodytes hexapterus*** PALLAS	5
					Lumpenus	4
					Hemilepidotus (c)	1
					Unidetified (b)	15
					Unidetified (e)	1
					Unidetified (f)	5
					Fish egg	1
51		53°-07′ N 173°-06′ E	12	1935	***Ammodytes hexapterus*** PALLAS	1
					Lumpenus	1
					Hemilepidotus (c)	1

Table 10. (Continued)

No. of Collection	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Fish-larva collected (Species or group)	Number of individuals
					Unidentified (a)	2
					Unidentified (f)	4
					Fish eggs	5
52		53°-07′ N 173°-06′ E	〃	2157	***Ammodytes hexapterus*** PALLAS	2
					Lumpenus	2
					Hemilepidotus (b)	2
					Hemilepidotus (c)	5
					Unidentified (d)	1
					Unidentified (f)	2
					Fish eggs	6
53	31	52°-56′ N 171°-51′ E	13	0737	***Lumpenus***	2
					Anoplopoma fimbria PALLAS	1
					Hexagrammos	3
					Hemilepidotus (c)	1
54	32	52°-07′ N 169°-35′ E	〃	2044	***Anoplopoma fimbria*** (PALLAS)	2
					Hexagrammos	1
					Hemilepidotus (a)	1
					Hemilepidotus (b)	10
					Unidentified (a)	121
					Unidentified (f)	1
55	33	51°-13′ N 167°-16′ E	14	1950	***Hexagrammos***	1
					Hemilepidotus (a)	2
					Hemilepidotus (c)	1
					Unidentified (a)	30
56	34	50°-25′ N 165°-15′ E	15	0822	Unidentified (a)	3
57	35	49°-42′ N 163°-07′ E	15	1942	***Hemilepidotus*** (a)	1
					Unidentified (a)	1
58	(36)	48°-41′ N 160°-22′ E	16	1913	No fish-larva	
59	37	47°-55′ N 158°-21′ E	17	0637	No fish-larva	
60		46°-48′ N 155°-47′ E	〃	1928	No fish-larva	
61		44°-43′ N 151°-00′ E	18	1936	No fish-larva	
62		42°-49′ N 146°-49′ E	19	1947	No fish-larva	

16. Data on Salmon Gill-Net Fishing
(鮭鱒流網試験記録)

Operation was supervised by captain and deck officers, and all hands of crew and cadets were engaged in the work.

The fish caught were:

Oncorhynchus nerka (*Walbaum*), Sockeye salmon, Red salmon, Blue-back salmon, Sukkegh salmon, ベニマス、ベニサケ、ベニ

Oncorhynchus keta (*Walbaum*), Chum salmon, Dog salmon, Calico salmon, Keta salmon, サケ、シロザケ、シロ

Oncorhynchus gorbuscha (*Walbaum*), Pink salmon, Humpback salmon, カラフトマス、セツパリマス

Oncorhynchus tschawytscha (*Walbaum*), King salmon, Spring salmon, Chinock salmon, Typee salmon, Tchavike, マスノスケ

Salvelinus malma (*Walbaum*), Dolly varden trout, オショロコマ

Pleurogrammus monopterygius (*Pallas*), Atka mackerel, キタノホツケ

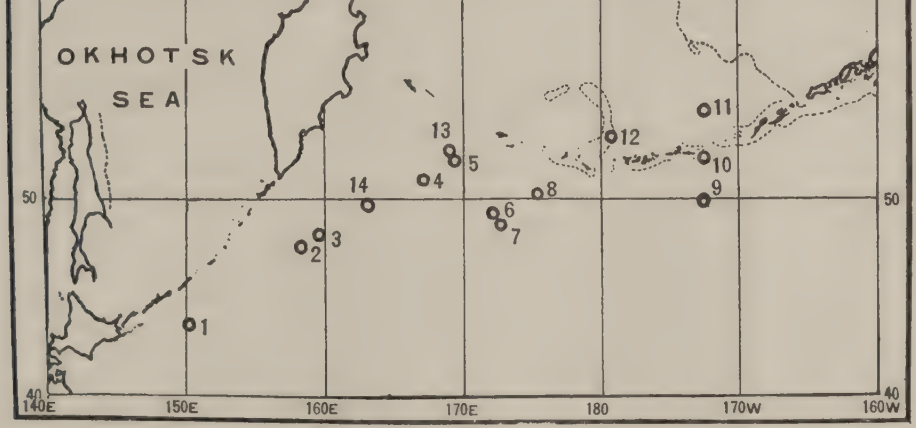

Fig. 6. Location of salmon gill-net set on 1957 cruise of the "Oshoro Maru"

Table 11. Data on salmon fishing operation on 1957

No. of fishing	Date and time (zone time)				Position of net-set		Direction of drift "toward"	Weather	Wind	
	Net set		Net haul							
	Date	Time	Date	Time	Lat.	Long.			Direction	Force
1	June 9	1909	June 10	0345	44-33N	151-08E	260°～280°	o	N E	3
2	June 18	1947	June 19	0308	47-40N	157-56E	320°	o	E S E	4
3	June 19	1910	June 20	0314	48-24N	159-38E	315°	o	E S E	4
4	June 22	1936	June 23	0410	51-10N	169-35E	220°～230°	d	N E	3
5	June 23	2012	June 24	0312	52-04N	169-35E	270°	d	N E	4
6	June 26	1940	June 27	0315	49-28N	171-50E	225°	o	North	2
7	June 27	1935	Juue 28	0313	48-50N	172-44E	225°～205°	o	Calm	
8	June 28	1918	June 29	0320	50-19N	175-36E	325°～330°	o	E S E	2
9	Jnly 5	1911	July 6	0315	49-59N	172-23W	70°～ 80°	o	S W	4
10	July 6	1855	July 7	0313	51-50N	172-00W	135°	o	W S W	1
11	July 7	1925	July 8	0312	53-50N	172-00W	325°	o	East	2
12	July 9	1924	July 10	0310	52-51N	179-12W	270°～300°	d	E N E	3
13	July 13	2001	July 14	0312	52-07N	169-35E	150°～160°	o	N W	3
14	July 15	1939	July 16	0302	49-42N	163-07E	120°～130°	f	W S W	3

cruise to Aleutian waters

Surface temp. (C°)	Colour of sea	Trans-parency (m)	Amount of net cast (Tan) 1Tan=49.2m long, 5.3~5.4m deep, (But 4.2Sun 53.2m long, *San-mai Ami* 31m long)						
			Mesh 2.5Sun (7.6cm)	Mesh 3.0Sun (9.1cm)	Mesh 3.5Sun (10.6cm)	Mesh 4.0Sun (12.1cm)	Mesh 4.2Sun (12.7cm)	Mesh 4.5Sun (13.6cm)	*San-mai Ami*
5.2	5		5	7	9	24	0	15	5
5.2	4		5	7	10	24	0	15	5
5.5	4	13	5	7	10	24	0	15	5
5.8	3		5	7	8	19	0	14	5
6.3	5	5	5	8	10	23	8	15	5
6.8			5	7	10	24	8	15	5
7.5			5	6	9	24	8	15	5
8.0			5	7	10	24	8	15	5
7.8		13	5	7	10	25	8	15	5
6.2			5	7	10	24	6	15	5
8.1			5	7	10	24	7	15	5
6.3		15	5	7	10	24	6	15	3
7.6		13	5	7	10	24	6	15	3
7.2	4		5	7	10	24	6	15	3

Table 12. Data on catch of salmon on 1957 cruise to Aleutian waters

No. of fishing	Number of fish caught																	
	Mesh size of net 2.5 Sun					Mesh size of net 3.0 Sun					Mesh size of net 3.5 Sun					Mesh size of net 4.0 Sun		
	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)	Sockeye (ベニ)	Chum (シロ)	Pink (マス)
1						0	1	107	0	0	0	5	145	0	0	0	48	82
2	1	0	23	0	0	0	0	180	0	0	0	1	240	0	0	6	13	76
3	0	0	8	0	0	0	0	127	0	0	0	1	308	0	0	3	10	143
4	12	3	10	0	0	18	15	85	0	0	13	5	140	0	0	29	45	281
5	5	3	7	0	0	21	16	27	0	0	24	8	83	0	0	37	18	56
6	4	15	11	0	0	6	16	79	0	0	1	6	211	0	0	9	6	190
7	0	4	7	0	0	1	0	36	0	0	2	0	49	0	1	1	1	47
8	1	14	2	0	0	2	2	15	0	0	3	2	51	0	0	2	3	21
9	0	23	0	0	0	0	15	0	0	0	2	50	4	0	1	9	124	1
10	0	0	0	0	0	4	13	0	0	0	22	31	2	0	0	26	59	2
11	5	8	0	0	0	5	18	4	0	0	3	27	3	0	0	6	37	18
12	3	130	0	0	0	1	24	0	0	0	0	14	0	0	0	1	33	0
13	3	1	0	0	1	5	1	2	0	0	5	1	3	0	1	8	5	21
14	1	48	0	0	0	1	13	8	0	0	11	8	24	0	0	28	17	28

Table 12. (Continued)

No. of fishing	Number of fish caught																	
	Mesh size of net 4.0 Sun		Mesh size of net 4.2 Sun					Mesh size of net 4.5 Sun					*San-mai Ami*					
	King (マスノスケ)	Silver (ギン)	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)	Sockeye (ベニ)	Chum (シロ)	Pink (マス)	King (マスノスケ)	Silver (ギン)	
1	0	0						0	27	7	1	0	0	6	38	0	0	
2	0	0						0	6	12	0	0	0	1	59	0	0	
3	0	0						2	4	8	0	0	0	0	43	0	0	
4	0	0						15	16	20	0	0	8	5	63	0	0	
5	0	0	8	5	8	0	0	11	5	8	0	0	17	3	12	0	0	
6	0	0	5	0	10	0	0	1	2	14	0	0	3	13	33	0	0	
7	0	3	0	0	3	0	0	0	0	1	0	0	0	2	12	0	0	
8	1	0	0	0	2	0	0	1	0	1	0	0	0	7	0	0	0	
9	0	7	4	11	1	0	1	2	18	0	0	6	0	21	0	0	3	
10	0	3	3	4	0	0	0	12	3	1	0	0	3	2	0	0	0	
11	0	0	3	2	1	0	0	2	6	4	0	0	2	3	1	1	0	
12	0	0	1	8	0	0	0	0	1	0	0	0	1	8	0	0	0	
13	0	2	2	2	7	0	0	4	3	6	0	2	0	0	3	0	1	
14	0	3	2	2	4	0	0	6	7	6	1	3	3	21	1	0	0	

17. Data on Measurement of Biological Characters of Salmon
(鮭鱒生物学的測定記録)

Measurement was made by K. Kyushin, T. Kinoshita, K. Kawamura and T. Sasaki.

I. Measurement of various biological characters
(各種生物学的形質測定)

It was impossible to sample a definite number of specimens from each net of different mesh size. The sampling was made at random from mixed catch.

Age determination was made by T. Kubo.

Abbreviations:

Sex, F.	Female
M.	Male
F.L.	Fork length
B.L.	Scaled body length
H.L.	Head length
S-E.	Distance from eye center to tip of snout
C.P.D.	Caudal peduncle depth
B.W.	Body weight
G.W.	Gonad weight
E.N.	Number of eggs in ovary
E.D.	Mean egg diameter (measured 30 eggs)
P.A.N.	Pyrolic appendage number

Table 13. Data on measurement of salmon in 1957 cruise to Aleutian waters

1. Pink salmon (All 2 years old) カラフトマス

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
1	F	470	450	98	33		1200	44	1915	3.6	193	
	F	445	422	80	33		1050	25	1025	3.0	158	
	F	440	425	90	33		1050	31	1346	3.8	147	
	F	435	413	80	33		1000	35	1858	3.4	129	
	F	435	410	94	31		950	36	1959	3.3	149	
	F	423	402	89	32		900	15	1960	1.7	136	
	F	423	400	88	32		950	23	1758	3.1	167	
	F	420	403	88	33		950	15	1889	2.5	128	
	F	415	400	86	30		750	8		2.1	129	
	F	415	395	90	32		850	13	1912	2.4	137	
	F	410	390	81	29		800	20	1747	2.9	161	
	F	405	385	82	29		800	18	1716	2.7	145	
	F	395	375	83	30		750	15	1418	2.7	131	
	M	480	458	104	38		1200	6			144	
	M	465	440	99	36			5			136	
	M	455	435	97	36		1050	8			143	
	M	455	430	99	36		1050	3			118	
	M	445	420	95	36		950	10			145	
	M	440	410	93	36		950	3			134	
	M	435	415	99	35		900	4			151	
	M	425	405	93	34		950	4			140	
	M	415	390	89	32		750	4			151	
	M	410	390	89	34		800	3			130	
		505	480				1550					
		500	475				1400					
		475	453				1400					
		470	450				1450					
		460	440				1050					
		450	430				1000					
		445	427				950					
		443	420				1000					
		440	420				900					
		435	410				1100					
		430	413				900					
		430	410				950					
		430	410				900					
		430	407				850					
		425	410				950					
		425	407				950					
		425	405				900					

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
1		425	405				800					
		420	402				950					
		420	400				850					
		420	400				850					
		415	395				900					
		410	387				850					
		405	388				800					
		405	387				800					
		405	382				800					
2	F	470	445	99	35		1100	34	2054	3.3	125	
	F	465	440	94	33		1100	58	1953	4.1	129	
	F	450	430	92	31		1050	36	2070	3.3	120	
	F	450	425	94	33		1050	34	1597	3.5	168	
	F	440	420	88	33		1000	22	1944	2.9	130	
	F	430	410	82	29		900			2.7	137	
	F	425	400	85	30		900	27	1485	3.3	151	
	F	420	400	87	31		950	44	1661	3.7	141	
	F	420	400	87	30		950				173	
	F	420	400	81	32		850	23	1998	2.8	134	
	F	415	395	85	27		850	23	2040	3.1	174	
	M	500	475	117	43		1300	29			122	
	M	475	455	97	40		1200	5			130	
	M	465	445	100	39		1150	12			124	
	M	455	430	100	38		1100	9			164	
	M	450	435	96	33		1050				155	
	M	450	430	96	34		1100				132	
	M	445	425	93	34		1100	10			151	
	M	430	410	89	34		1000	11			167	
	M	430	410	88	33		750	6			122	
	M	425	405	82	33		800	4			133	
	M	425	400	91	33		900	6			186	
	M	425	400	90	34		800	12			134	
	M	400	380	82	33		750	6			123	
		500	470				1300					
		465	435				1100					
		455	430				1200					
		450	435				1050					
		450	430				1050					
		445	425				1150					
		445	425				1100					
		445	420	90	29		950					

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
2		440	420				1050					
		435	415	95	35		950				111	
		435	415				950					
		430	410				950					
		430	410				900					
		425	405				950					
		425	405				900					
		425	405				850					
		420	400				900					
		420	400				900					
		420	400				900					
		420	400				850					
		420	400				800					
		415	395				850					
		405	390	85	30		800				114	
		405	390				750					
		405	380				650					
3	F	440	415	96	32		1050	24	1665	3.1	112	
	F	440	415	88	30		950	36	1866	3.6	149	
	F	435	415	90	30		1150	46	1720	4.1	131	
	F	435	415	93	30		950	28	1876	3.2	134	
	F	430	410	86	29		1000	24	1969	3.1	118	
	F	415	400	84	30		950	17	1819	2.8	125	
	M	490	465	112	41		1200	7			167	
	M	465	445	101	35		1250	5			129	
	M	465	440	97	35		1150	2			138	
	M	465	440	104	33		1100				110	
	M	465	435	98	32		1100	8			129	
	M	450	430	103	37		1100	7			119	
	M	450	430	90	36		1010	10			150	
	M	450	425	105	36		1150	10			134	
	M	450	425	92	33		1050	10			150	
	M	445	425	96	34		1050	4			144	
	M	445	420	93	33		1050	10			122	
	M	440	415	92	32		900				129	
	M	435	415	94	29		1150				152	
	M	435	415	102	35		1050	17			155	
	M	435	410	93	33		1000	13			122	
	M	430	410	95	33		950	5			135	
	M	420	400	95	37		950	11			133	
		475	450				1400					
		465	440				1200					

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
3		465	440				1000					
		460	440				1150					
		455	435	98	35		1100				145	
		450	430	93	34		1100				144	
		450	430				850					
		450	430				850					
		450	425				1070					
		445	425				1050					
		440	420				1050					
		440	420				1000					
		440	420				930					
		440	415				1050					
		440	415				1050					
		440	415				950					
		430	410				970					
		430	410				900					
		430	410				800					
		420	405				950					
		420	400				950					
		420	400				900					
		420	400				850					
		420	400				800					
		415	400				970					
		400	385				850					
		395	375				800					
4	F	450	430	87	28	32	1200	56	1602	4.0	137	
	F	450	430	92	33	33	1150	32	1869	3.4	177	
	F	450	425	95	33	32	1150	55	1719	4.1	157	
	F	445	425	88	32	30	1100			3.5	122	
	F	435	415	84	30	25	1000	30	1859	3.4	130	
	F	430	410	83	29	29	1000	37	1860	3.5	129	
	M	475	450	102	38	34	1450	17			138	
	M	470	450	108	39	35	1350	26			170	
	M	470	450	96	33	31	1300	24			143	
	M	465	445	108	35	30	1250	21			142	
	M	460	440	100	33	31	1250	11			132	
	M	460	440	97	36	30	1200	18			142	
	M	450	430	97	35	33	1200	16			142	
	M	450	430	100	35	29	1100	17			139	
	M	450	430	96	34	31	1050	10			117	
	M	450	425	100	34	29	1200	27			145	
	M	440	420	97	37	29	1150				160	

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
4	M	440	420	102	34	28	1050	26			117	
	M	440	420	90	34	30	1000				135	
	M	440	415	100	37	29	1050	6			143	
	M	440	415	98		32	1000	25			158	
	M	425	405	95	31	30	1000	23			141	
	M	420	400	91	29	25	950	16			132	
	M	410	390	88	32	26	750	28			122	
	M	400	380	80	30	27	700	19			132	
		510	490				1650					
		510	485				1750					
		500	470	105	40	34	1450					
		475	450				1450					
		475	450				1400					
		475	440				1300					
		470	450	108	38	35	1500				135	
		470	445				1300					
		460	440				1200					
		460	440				1150					
		460	435				1150					
		455	435				1200					
		455	435				1150					
		450	430				1200					
		450	430				950					
		445	420				1150					
		440	420				950					
		440	415				1200					
		435	415				1150					
		435	410				1100					
		430	410				1150					
		430	410				950					
		425	405				1000					
		420	400				1050					
		420	400				800					
6	F	455	435	92	32	30	1180	40	1617	4.0	128	
	F	450	425	94	34	31	1100	73	1680	4.5	140	
	F	440	420	91	30	31	1200	37	2189	3.3	114	
	F	440	415	86	29	29	1100	48	1572	4.0	140	
	F	435	415	85	30	29	1050	45	1519	3.8	144	
	F	430	400	89	30	29	1020	62	1362	4.4	108	
	F	425	405	83	29	29	1050	59	689	4.6	159	
	F	425	400	86	31	29	940	43	685	4.8	127	
	F	425	400	91	32	30	850	60	1219	4.6	157	

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
6	F	425	395	82	27	31	1500	36	1989	3.6	141	
	F	420	400	88	29	29	1000	48	1223	4.4	139	
	F	410	390	82	30	27	860	60	1165	4.6	121	
	F	410	385	83	27	31	900	43	3279	3.8	121	
	F	410	385	82	30	28	760	40	1184	4.2	124	
	F	395	375	81	29	28	760	45	1206	4.2	157	
	F	375	355	75	25	23	520	32	1086	3.9	140	
	M	500	475	100	41	36	1550					
	M	460	440	100	39	32	1420	36			149	
	M	435	415	93	34	31	1200					
	M	425	400	98	37	32	1220	6			132	
	M	420	400	92	35	33	1050	18			128	
	M	420	400	93	37	27	900	28			137	
	M	415	395	97	37	30	1110	35			119	
	M	410	390	93	32	29	910	22			108	
	M	400	380	89	33	28	840	32			124	
	M	395	375	80	31	27	850	29			171	
		495	470				1530					
		465	445				1330					
		465	435				1230					
		460	435				1300					
		460	435				1230					
		450	425				1180					
		450	425				1140					
		450	425				1050					
		445	430				1190					
		440	415				1120					
		440	415				1070					
		435	415				1190					
		435	415				1100					
		435	415				1100					
		435	410				1160					
		435	410				1040					
		430	410				1000					
		430	410				950					
		430	405				1150					
		430	405				1020					
		425	405				1060					
		425	405				1000					
		425	400				950					
		420	400				950					

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
9	F	485	455	104	34		1500	82	1684	4.8	132	
	M	520	490	118	46		1800	40			147	
	M	500	475	113	38		1750	33			123	
	M	490	465	108	40		1400	7			176	
		490	465	105	36		1700				124	
11	F	524	495	111	45	37	1750	145	1475	5.8	144	
	F	505	475	104	32		1600	150	2219	5.5	132	
	F	500	475	105	37	32	1500	167	1828	5.8	128	
	F	500	470	108	41	35	1500	119	1495	5.4	132	
	F	500	470	104	35	32	1600	96	1572	3.6	131	
	F	500	468				1450	121	1391	5.7	137	
	F	495	465	105	37	31	1450	143	1601	5.6	105	
	F	495	465	97	38	30	1450	111	1247	5.7	118	
	F	490	465	100	36	32	1600	138	1709	5.5	187	
	F	490	460	108	42	34	1550	131	1652	5.3	146	
	F	490	460	103	37	34	1550	134	1613	5.5	130	
	F	490	455	106	36	31	1400	106	1470	5.4		
	F	485	460	102	37	32	1350	110	1362	5.6	152	
	F	485	457	99	33	31	1400	125	1619	5.3	134	
	F	475	450				1400	118	1580	5.4	134	
	F	475	445	107	37	37	1440	115	1481	5.2	133	
	F	475	445	96	38	31	1400	131	1816	5.6	155	
	F	465	435	102	37	30	1400	133	1430	5.9	130	
	F	440	415				1050	97	1531	4.6	130	
	F	417	395				850	36	731	4.5	116	
	M	530	500	124	45	36	1700	79			127	
	M	525	495	122	52	38	1950	85			126	
	M	520	495	112	42	35	1500	39			147	
	M	510	485	113	42	33	1600	90			148	
	M	505	480	117	44	36	1750	67			134	
	M	505	475	120	46	35	1600	68			123	
	M	475	450	111	40	34	1450	76			153	
	M	450	425	100	35	31	1500	49			110	
		495	470	104	41	35	1500					
		490	460	111	42	31	1450					
13	F	495	467	105	39	34	1500	147	1450	5.9	141	
	F	488	459	110	40	33	1500	115	1613	5.5	124	
	F	484	457	107	39	34	1500	142	1521	6.1	152	
	F	484	456	103	39	34	1500	124	1999	5.1	142	
	F	482	456	106	40	33	1700	116	1797	5.1	157	
	F	480	456	100	37	34	1500	96	1368	5.3	143	

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
13	F	478	453	101	37	33	1400	129	1643	5.4	153	
	F	470	441	102	36	31	1350	96	1492	4.9	158	
	F	470	438	100	38	32	1300	105	1520	5.2	149	
	F	469	440	101	37	34	1300	117	1430	5.5	142	
	F	462	438	101	37	32	1300				166	
	F	458	432	95	35	33	1300	84	2002	4.5	155	
	F	451	426	97	35	31	1100	75	1152	5.1	122	
	F	447	421	94	34	31	1100	68	1369	4.7	109	
	F	445	422	96	34	31	1100	77	1297	4.9	134	
	F	444	418	95	34	30	1150	91	1386	3.9	138	
	F	433	410	93	32	30	1100	80	1363	5.0	143	
	M	540	512	131	53	37	1500	70			127	
	M	507	480	120	47	39	1150	33			127	
	M	506	480	119	45	35	1550	29			128	
	M	502	477	123	48	34	1350	58			133	
	M	498	473	115	45	34	1150	44			141	
	M	495	469	114	43	36	1500	23				
	M	483	460	103	39	35	1500	28			136	
	M	470	447	106	40	30	1150	38			145	
		525	495				1850					
		515	488				1800					
		484	460				1400					
		482	456				1200					
		475	450				1250					
		472	446				1450					
		466	440				1250					
		447	423				1200					
		439	415				1100					
		426	405				850					

Table 13. (Continued)

2. Chum salmon, シロザケ

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
1	F	620	590	127	45		2700	114	2763	4.5	219	6
	F	600	565	122	45		2500	34	1622	3.6	198	6
	F	610	580	125	48		3000	78	3594	3.5	173	5
	F	610	575	128	48		2950	109	1400	4.5	195	5
	F	535	505	118	43		2200	59	2510	3.8	154	5
	F	550	525	116	40		2200	25	3764	2.1	125	4
	F	550	515	115	40		1900	30	3765	2.7	186	4
	F	540	515	112	40		1900	36	3168	2.7	203	4

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
1	F	540	510	112	42		1950	41	2646	3.2	205	4
	F	530	500	110	43		2200	74	2581	4.1	167	3
	M	590	560	130	43		2700	7			190	5
	M	580	550	127	48		2800	59			203	5
	M	570	540	130	52		2450	72			210	5
	M	575	545	134	50		2700	35			183	4
	M	565	540	122	50		2150	9			217	4
	M	560	530	121	47		2000	12			158	4
	M	550	515	120	45		2050				175	4
	M	510	480	113	50		1950	34			152	4
	M	550	520	123	40		2250	1			182	3
	M	480	450	105	37		1450	16			162	3
		620	585				3200					5
		615	580				2800					5
		605	565				2700					5
		600	570				2800					5
		575	545				2500					5
		560	535				2150					5
		560	530	125	50		2000					5
		580	550				2600					4
		580	550	120	50		2350					4
		575	545				2450					4
		575	545				2250					4
		565	540				2250					4
		550	530				2400					4
		550	525				1900					4
		545	525				2050					4
		545	515				2050					4
		545	510				1950					4
		540	510				2000					4
		540	500				1950					4
		530	500				1700					3
		520	490				2300					3
		570	545	119	43		1800					3
		545	520				2100					3
		540	510				2000					3
		535	500	112	40		1800					3
		535	500				1950					3
		520	495				1550					3
		490	460									
2	F	595	560	125	50		2500	55	4210	3.0	190	5
	F	572	534	119	48		2200	133	1923	5.1	169	5

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
2	F	577	543	134	46		2350	141	2629	5.0	215	4
	F	549	518	117	47		2270	44	3643	3.2	240	4
	F	543	512	117	44		1950	41	3636	3.0	176	4
	F	536	505	113	45		1950	33	2579	3.0	247	4
	F	527	494	110	42		1900	59	3003	3.6	203	4
	F	522	490	109	43		1700	32	2227	3.2	199	4
	F	516	480	113	43		1800	36	2856	3.0	218	4
	F	500	472	113	45		1650	38	2294	3.4	181	4
	F	500	472	107	40		1500	50	2385	3.7	155	4
	F	479	453	101	39		1420	26	3112	2.5	152	4
	M	610	572	139	56		2720	4			154	5
	M	572	540	129	50		2300	37			170	4
	M	538	510	117	47		2050				225	4
	M	500	472	115	44		1400	5			196	4
	M	494	463	110	45		1450	8			176	3
	M	475	448				1250	5			183	3
	M	466	445	107	37		1300	8			207	3
3	F	566	546	122	41		2500	41	977	4.4	174	5
	F	560	532	122	40		2400	36	3249	3.0	174	5
	F	578	541	113	34		2200	126	2814	4.9	252	4
	F	548	520	114	34		1550	79	2632	4.0	216	4
	F	539	510	113	37		1950	41	2730	3.1	187	4
	F	530	502	107	35		1900	29	2683	2.6	114	4
	F	527	488	107	35		1700	22	2947	2.5	173	4
	F	523	488	112	37		1800	45	3203	3.1	190	4
	F	514	485	102	33		1750	43	3162	3.3	209	4
	F	513	478	100	31		1500	24	2841	2.5	191	4
	F	480	444	90	29		1200	20	2580	2.6	168	4
	M	546	520	115	38		2000				186	4
	M	472	443	99	34		1150	6			249	4
	M	491	465	103	34		1400	2			194	3
4	F	620	580	144	59	45	3100					6
	F	625	585	130	50	39	3000	193	2790	5.3	172	5
	F	580	550	119	43	37	2000	31	3376	2.8	151	5
	F	575	535	124	47	34	2150	82	2586	4.1	173	4
	F	540	510	118	47	38	2000	27	3379	2.6	184	4
	F	500	480	108	40	33	1450	7		1.7	177	4
	F	490	460	107	32	32	1500	30	3047	3.0	189	4
	F	490	460	105		35	1400	7		1.6	178	4
	F	485	460	98	36	28	1150	7		1.6	196	4
	F	460	435	96	35	32	1050	8		1.7	177	4

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
4	F	475	450	106	38	35	1700	45	2387	3.5	215	3
	F	450	430	95	35	29	1150	5		1.2	230	3
	M	610	580	130	58	42	2900	62			162	4
	M	610	580	142	57	39	2700	29			171	4
	M	540	510	118	46	37	2050	34			182	4
	M	510	480	108	40	33	1400	1			205	4
	M	500	480	110	34	29	1500				157	4
	M	485	465	106	42	33	1250	1			160	4
	M	475	440				1000				162	4
	M	480	450	102	40	31	1250	1			238	3
	M	470	440	105	40	33	1150				158	3
	M	460	440	102	38	31	1100	1			165	3
	M	430	410	86	33	27	850				202	3
		630	600				3000					5
		620	580				3100					5
		620	580				3000					5
		590	550				2700					4
		575	535				2250					4
		565	530				2250					4
		555	520				1900					4
		550	520				2150					4
		550	515				2150					4
		540	510				1850					4
		530	505				1700					4
		520	490	110	42	34	1600				218	4
		500	470				1600					4
		480	450				1250					4
		475	445				1100					4
		500	470				1300					3
		475	450				1250					3
		470	440				900					3
		465	440	95	35	31	1200				172	3
		465	440				1200					3
		450	430				1000					3
		450	430				1000					3
		445	420	92	35	32	950					3
		415	390				850					3
6	F	326	310	68	26	24	368	1		0.5	184	2
	F	304	293	65	24	25	356			0.5	265	2
	M	331	316	69	27	25	375				202	2
	M	311	295	65	24	21	334				166	2
	M	310	293	66	24	22	338				208	2

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
6		328	314	73	23	24	300					2
		325	309	68	24	23	345					2
		320	306	71	26	29	368				188	2
		319	303	68	24	23	338				202	2
		337	318	74	27	25	405				221	
9	F	545	517	116	42	35	2150				197	4
	F	500	473	103	40	34	1700	8		1.7	174	4
	F	565	540				2200					3
	F	560	525	113	40	36	2150	26	3959	2.4	216	3
	F	540	510	115	40	35	1850	20	2559	2.5	127	3
	F	515	490	108	40	34	1700	8		1.7	191	3
	F	465	440	93	34	34	1300	2		1.0	189	3
	F	463	443	100	38	31	1250	5		1.4	174	3
	F	455	435	95	34	28	1200	5		1.4	170	3
	F	453	426				1200					3
	F	445	420	91	32	30	1230	4		1.2	200	3
	F	442	415				1100					3
	F	427	407				900					3
	M	555	525	123	45	37	2500	1			143	4
	M	545	515	116	41	39	1900	1			196	4
	M	575	540	123	51	40	2400	6			208	3
	M	540	520	115	47	33	1500	5			163	3
	M	540	510	123	47	38	1900	3			175	3
	M	535	505	117	46	36	2100	1			244	3
	M	513	485				1900					3
	M	505	475				1800					3
	M	497	469				1600					3
	M	495	470	103	35	34	1550	1			155	3
	M	495	470	106	40	35	1500	1			156	3
	M	493	465				1400					3
	M	485	457	108	43	34	1600				186	3
	M	485	455	105	43	32	1450	10			172	3
	M	467	443				1200					3
	M	465	445	98	35	30	1450	1			166	3
	M	462	435				1300					3
		518	490				1800					4
		505	480	108	41	33	1700				164	3
		505	475	106	32	36	1700				215	3
		493	465	107	44	33	1100				164	3
		480	455				1300					3
		478	455				1400					3
		477	450				1300					3

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
9		468	445				1400					3
		466	438				1300					3
		465	440				1300					3
		465	435				1200					3
		460	440	98	38	31	1320				199	3
		458	430				1100					3
		457	429				1100					3
		451	427				1200					3
		451	427				1100					3
		474	450				1300					3
		438	420				1050					3
		434	415				1000					3
		470	445	100	38	27	1250				210	
11	F	668	625				3600					5
	F	545	515	111	45	36	2000	11		1.8	195	4
	F	473	450	100	38	33	1300	7		1.3	247	4
	F	530	506	110	41	33	1600	7		1.5	163	3
	F	493	468	100	40	33	1350	5		1.4	175	3
	F	490	467	103	40	34	1450	4		1.3	172	3
	F	479	456	102	40	33	1400	5		1.5	219	3
	F	477	455	101	37	32	1250	4		1.4	192	3
	F	469	446	99	36	31	1200	4		1.3	184	3
	F	468	446	97	36	33	1350	4		1.4	200	3
	F	424	439	86	33	28	900	3		1.3	159	3
	F	423	404	94	34	30	950	3		1.2	224	3
	F	362	344	72	27	26	550				214	2
	F	328	312				350					2
	M	577	542	123	48	39	2300	1			252	4
	M	546	520	120	46	37	2200	1			207	4
	M	535	504	116	45	37	1950				190	4
	M	505	483	108	41	36	1550				153	4
	M	525	495	114	44	35	1650	1			159	3
	M	510	483	110	42	34	1550	1			180	3
	M	475	450	103	39	33	1350				183	3
	M	390	373	85	33	27	700					2
		542	515				2000					4
		533	507				1850					4
		512	485				1600					4
		493	466				1500					4
		498	475				1450					3
		497	475	108	41	32	1350					3
		490	463				1350					3

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
11		488	462	103	40	33	1350				187	3
		486	466				1400					3
		480	455				1300					3
		479	457				1400					3
		478	452				1400					3
		477	450				1250					3
		475	450				1400					3
		473	448				1150					3
		472	454				1400					3
		472	447	105	39	34	1400				191	3
		471	450				1320					3
		469	445				1250					3
		468	445				1250					3
		467	441				1220					3
		466	440				1150					3
		464	443				1200					3
		464	440				1250					3
		460	437				1250					3
		443	418	94	36	30	1050					3
		376	358	74	28	26	600				163	2
		336	318				400					2
12	F	635	597	134	56	44	3600	262	2424	6.0	142	4
	F	552	525	112	44	37	1920	12		1.7	193	4
	F	492	466	106	41	31	1320	6		1.5	198	3
	F	486	462	105	42	33	1420	5		1.4	178	3
	F	475	456				1250					3
	F	475	450				1200					3
	F	466	442				1330					3
	F	452	427				1200					3
	F	444	420	96	34	30	1070	4		1.3	172	3
	F	437	415				940					3
	F	420	400	84	33	27	800	2		1.2	218	3
	F	417	399				930					3
	F	320	304	66	26	22	330				217	2
	F	318	303	69	27	23	320			0.6		2
	F	315	298	68	26	21	350				237	2
	F	312	300				330				180	2
	F	297	283	67	24	20	300			0.5	244	2
	M	534	500	119	46	37	1900	2			201	4
	M	496	475	114	43	35	1480	1			202	3
	M	496	470	106	40	34	1580	1			147	3
	M	488	462	105	41	32	1260	1			151	3

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
12	M	474	452	104	41	31	1230	1			155	3
	M	460	438	100	40	31	1260	1			198	3
	M	459	435				1200					3
	M	444	420	102	37	30	1050				156	3
		550	522				2260					4
		372	352				510					2
		356	349	79	29	24	540					2
		354	333				500					2
		353	337				460					2
		342	326				430					2
		333	318				400					2
		330	315				400					2
		325	309				380					2
		323	301				370					2
		320	303				340					2
		318	303				370					2
		318	302	68	25	21	350				189	2
		317	302	68	25	22	330					2
		316	300	68	26	26	280					2
		315	300				320					2
		312	302				330					2
		310	295	69	25	25	320					2
		310	295				350					2
		310	293	67	26	21	330				170	2
		310	293				330					2
		307	292	69	23	21	320					2
		298	284				290					2
		271	258	61	22	18	200				195	2
		305	293				340					
13	F	632	592	137	57	53	3200	138	2525	4.9	238	6
	F	559	527	123	48	35	2100	27	2323	3.1	157	6
	F	610	572	132	54	44	3300	153	3354	4.6	150	4
	F	605	563	135	55	43	3360	234	3366	5.2	177	4
	F	588	556	124	43	40	2700	53	2906	3.5	150	4
	F	570	532	122	50	39	2450	135	2013	5.1	152	4
	F	566	530	120	50	39	2450	184	2412	5.5	193	4
	F	565	537	115	45	36	2000	35	3196	3.0	170	3
	F	537	500	113	47	38	2300	205	2044	5.8	198	3
	M	603	568	137	55	38	2700	20			180	4
	M	584	550	134	55	42	2750	42			160	4
	M	597	568	127	53	40	2400	8	145			3
	M	555	525	123	48	37	2350	98			171	3

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
13	M	324	309	70	26	20	350				265	2
		373	357	81	29	26	600				188	2

Table 13. (Continued)

3. Sockeye salmon, ベニザケ

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
2	F	586	547	124	47		2400	60	4147	3.1	101	6^3
	F	558	521	116	44		2250	43	4968	2.7	84	6^3
	M	548	517	129	49		1850	5			69	6^3
3	F	545	514	106	33		1900	20	3861	2.4	83	7^4
	F	567	532	108	33		2450	75	5081	3.2	102	6^2
	F	534	500	106	34		1700	89	1286	4.2	110	6^3
	M	604	570	128	46		2700				143	6^3
	M	558	525	113	35		2200	13			87	6^3
4	F	550	515	120	45	40	2150	85	4157	3.6	92	6^2
	F	545	515	110	40	42	2100	42	3296	3.1	84	6^3
	F	540	515	112	44	42	2200	66	1327	3.6	87	6^3
	F	540	510	113	40	38	2000	53	3030	3.4	89	6^3
	F	535	500	110	45	43	2250	76	2795	3.9	103	6^3
	F	510	485				1600	11		1.5	97	6^3
	F	570	540	122	50	48	2800	97	5324	3.5	91	5^2
	F	555	525	119	45	43	2450	91	5746	3.2	71	5^3
	F	510	480	104	39	35	1650	27	4089	2.3	103	5^3
	F	490	465	97	38	32	1200	21	2693	2.6	81	5^3
	F	440	415	88	32	32	1100	11		2.3	101	5^3
	F	420	390	87	32	30	900	15		2.2		5^3
	F	350	335				450					5^4
	F	330	310				350					5^4
	F	320	300	57	21	22	350	1		0.5		5^4
	M	550	525	121	42	38	2300	1			96	6^3
	M	550	525	129	50	42	2200	7			101	6^3
	M	550	520	117	50	38	2050				102	6^3
	M	540	505	120	43	39	2200	25			93	6^3
	M	510	485	115	53	38	1950				94	6^4
	M	495	470	101	38	35	1350				106	6^4
	M	530	495	118	48	39	1750				99	5^3
	M	500	470	100	37	35	1400	1			86	5^3
	M	485	460	102	39	35	1450	1			100	5^3
	M	480	450	105	40	37	1500	17			90	5^3
	M	370	350	80	27	26	650	10			97	4^3

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
4	M	360	345	77	28	25	550	7				4^3
	M	325	300	64	23	23	350				87	4^3
		590	550	137	57	44	2700				97	6^3
		580	540				2250					6^3
		400	380				750					6^3
		515	490				1750					6^4
		500	470				1350					6^4
		490	460				1200					6^4
		530	500				1900					5^2
		525	500				1750					5^3
		522	495				1800					5^3
		470	440				1200					5^3
		405	380				800					5^3
		510	485				1700					4^2
		475	450				1250					4^2
		465	445				1250					4^2
		400	380				650					4^3
		385	360				600					4^3
		360	340				500					4^3
		350	325				450					4^3
		325	310				350					4^3
		315	300				400					4^3
		465	440				1250					
		430	420				900					
5	F	590	550	126	48	44	2600	81	3145	4.0	92	6^3
	F	570	535	116	44	40	2250	76	5243	3.1	82	6^3
	F	570	535	114	42	41	2100	41	4589	2.6	101	6^3
	F	530	500	106	48	41	1850	12		1.4	102	6^3
	F	470	445	95	32	36	1250	5		1.4	108	6^3
	F	500	475	107	37	37	1400	8		1.5	84	5^2
	F	475	450	97	32	36	1300				84	5^2
	F	475	450	96	36	36	1250	9		1.5	91	5^2
	F	520	490	107	41	37	1600	30	3763	2.6	110	5^3
	F	500	470	100	39	35	1500	27	5023	2.2	94	5^3
	F	470	445	97	32	34	1150			1.3	107	5^3
	F	460	435	94	33	33	1050	6		1.3	96	5^3
	F	455	430	89	34	28	1000				99	5^3
	F	415	390	82	30	29	800	3		1.0	93	4^2
	F	290	275	55	19	21	350				98	4^3
	M	565	530				2400	75			66	5^2
	M	560	530	110	43	39	2050				107	5^2
	M	530	500	113	42	34	1500	1			105	5^2

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
5	M	550	520	116	47	43	2150	13			91	5^3
	M	535	505	111	43	41	1700				90	5^3
	M	500	470	100	36	32	1100				92	5^3
	M	490	465	103	39	31	1200				79	5^3
	M	455	430	96	32	32	1000				92	5^3
	M	400	380	88	31	29	700				91	5^3
	M	445	425	90	32	34	950				79	4^2
	M	350	330				550	22			130	4^3
	M	320	300	63	21	21	300				79	4^3
		565	530				2250					7^4
		525	495				1850					6^3
		500	470				1450					6^3
		530	495				1950					6^4
		480	450				1150					6^4
		540	515				2050					5^2
		530	500				1900					5^3
		525	490				1850					5^2
		490	465				1600					5^2
		485	465				1400					5^2
		470	440				1150					5^2
		495	470				1400					5^3
		470	445				1150					5^3
		470	440				1150					5^3
		465	440				1150					5^3
		465	440				1050					5^3
		460	430				1150					5^3
		440	420				900					5^3
		470	440				1150					4^2
		400	380				850					4^2
		420	395				900					4^3
		330	310				400					4^3
		325	310				400					4^3
9	F	575	535	124	44	45	2500	86	3552	3.9	88	6^3
	F	465	440	95	37	35	1400	9		1.3		5^3
	F	470	445	79	36	35	1300	5		1.0	78	4^2
	M	555	525	126	52	39	2100	17			94	6^4
	M	550	520	104	44	39	1950				94	5^2
	M	555	525	120	49	40	2150	4			85	5^3
	M	495	470	102	38		1450	1			101	5^3
	M	470	440	96	38	34	1230				82	5^3
		480	455	93	37	35	1300				109	5^3
		475	450	99	34	33	1250					4^2

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
11	F	603	568	132	51	47	3050	70	4988	3.3	102	6 3
	F	590	553	128	50	44	2650					5 2
	F	568	530	117	46	41	2150	89	3931	3.8	89	5 2
	F	508	468	104	41	36	1600	49	3969	3.3	81	5 3
	F	468	441	100	37	36	1250	8		1.3	100	5 3
	F	458	432	99	35	33	1100	5		1.4		5 3
	F	366	344	75	26	26	550	1		0.8	98	5 1
	F	458	424	96	36	36	1150			1.2	109	4 2
	F	375	357	75	26	25	550	1		0.8	73	4 3
	F	362	342	72	27	26	530	1		0.6	83	4 3
	M	625	590	145	60	43	2850	72			65	6 3
	M	524	492	116	49	40	1900	15			98	5 3
	M	512	478	119	49	41	1800	10			87	5 3
	M	485	459	102	37	36	1400				97	4 2
	M	382	360	78	28	27	620				84	4 3
	M	371	350	74	29	27	600				92	4 3
	M	343	325	71	25	25	500					3 2
		525	494	110	44	38	155				98	5 3
		475	445	100	39	34	1300					4 2
12	F	560	528	120	45	39	2080	106	3522	3.9	82	6 3
	F	364	342	72	26	26	500				85	4 3
	F	362	340	72	27	25	530	1		0.7	103	4 3
	F	360	340	71	27	27	490	1		0.6	94	4 3
	F	309	293	69	24	22	330					
	M	567	532	124	53	38	1900	11			101	5 3
		356	337	71	25	26	430					4 3
		320	305	66	24	22	330				161	3 2
13	F	588	548	127	49	45	2850	94	3830	3.9	114	6 3
	F	575	543	119	48	43	2500	156	5566	4.1	97	6 3
	F	573	535	120	47	45	2550	62	4077	3.4	99	6 3
	F	572	537	121	48	42	2500	154	3114	3.6	105	6 3
	F	565	530	124	51	43	2620	75	4908	3.5	113	6 3
	F	561	522	118	49	42	2250	54	3156	3.4	86	6 3
	F	495	463	107	43	37	1530	76	3620	3.5	102	6 4
	F	584	545	125	46	43	3000	193	5429	4.5	93	5 2
	F	510	475	119	41	38	1700	67	2978	3.8	88	5 3
	F	500	468	107	41	33	1450	56	2872	3.7	97	5 3
	F	450	427	93		35	1150	6		1.4	92	5 3
	F	420	398	84	30	30	850	3			88	5 3
	F	462	438	95	35	34	1300	6		1.3	89	4 2
	F	461	435	93	35	34	1150	4		1.1	95	4 2

(Continued)

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
13	F	350	330	71	27	25	450	1		0.7	92	4 [3]
	M	540	508	124	53	40	2300	13			92	7 [4]
	M	612	575	146	64	46	3100	42			87	6 [3]
	M	592	553	126	62	45	2900	66			93	6 [3]
	M	398	373	86	31	28	850	11			95	4 [3]
	M	377	357	80	29	26	600				94	4 [3]
		450	430	99	36	32	1100					5 [3]
		443	420	100	36	32	950				84	5 [3]
		364	342	74	29	25	500					4 [3]
		358	338	72	29	26	500				102	4 [3]

Table 13. (Continued)

4. Silver salmon, ギンザケ

No. of fishing	Sex	F.L. (mm)	B.L. (mm)	B.H. (mm)	S-E (mm)	C.P.D. (mm)	B.W. (g)	G.W. (g)	E.N.	E.D. (mm)	P.A.N.	Age
7	F	547	514	123	50	42	2170	47	5809	2.8	65	
	F	527	488	115	46	39	1780	25	6950	2.0	80	
	M	480	445	112	46	36	1370	6			71	
9	F	710	655	125	51	57	3650	14	808	1.4	50	
	F	575	540	131	55	43	2800	56	5518	2.8	55	
	F	575	535	122	57	49	2600	73	4690	3.3	69	
	F	570	535	120	45	45	2650	79	5168	3.3	62	
	F	565	530	121	49	46	2650	85	4505	3.6	80	
	F	560	520	120	51	42	2600	81	5161	3.4	67	
	F	520	490	119	45	41	1850	22	5554	2.0	67	
	M	610	575	141	55	46	3400	27			72	
	M	610	570	141	61	48	3150	67			70	
	M	610	570	145	60	49	3100	13			58	
	M	595	555	134	55	44	3150	54			57	
	M	590	550	133	56	49	3300	47			83	
	M	585	550	129	52	47	2300	25			78	
	M	510	475	115	44	39	2000	13			66	
	M	475	440	109	46	38	1600	17			59	
11		530	490	117	52	42	2100					
13	F	555	519	129	53	45	2150	59	5450	3.0	62	
	F	543	504	119	48	40	1850	70	5324	3.2	76	
	M	595	558	143	55	46	2800	51			63	
	M	580	543	130	53	45	2450	29			69	
	M	552	517	123	48	44	2300	28			69	
	M	513	474	119	49	40	1800	72			67	

II. Distribution of body length
(体 長 分 布)

Nearly all of the fish caught were subjected to the measurement.

Table 14. Distribution of length of salmon on 1957 cruise to Aleutian waters

1. Pink salmon, カラフトマス

Species	No. of fishing	Fork length (cm)																		
		26.5	27.5	28.5	29.5	30.5	31.5	32.5	33.5	34.5	35.5	36.5	37.5	38.5	39.5	40.5	41.5	42.5	43.5	
	1														2	8	33	41	58	
	2												3	2	6	26	53	97	87	
	3														2	13	32	77	77	
	4							1				1			1	4	4	14	29	
	5													1		2	6	20	20	
	6													4	4	13	31	56	110	
	7									1				1	3	6	10	29	31	
Pink salmon	8																7	11	15	
	9																			
	10																			
	11																			
	12																			
	13																		1	
	14																1	2	2	
	Total							1		1		1	3	8	18	72	174	336	411	

Species	No. of fishing	Fork length (cm)																			n
		44.5	45.5	46.5	47.5	48.5	49.5	50.5	51.5	52.5	53.5	54.5	55.5	56.5	57.5	58.5	59.5	60.5			
	1	68	46	50	26	12	11	9	3	1											368
	2	73	49	29	18	7	1	5		1											457
	3	90	70	32	27	6	2		2												430
	4	62	81	85	59	48	28	21	14	7	4		2	1							465
	5	27	26	21	25	17	9	1		1		1									177
	6	95	69	38	24	9	2	1												2	458
	7	34	17	16	3	1		2													154
Pink salmon	8	17	12	6	1	2	1		1												73
	9						3		1		1										5
	10			1	1			1	1		1										5
	11	1	1		2	4	5	9	3	2	2										29
	12																				
	13	3	4	2	7	3	4	6	1	3			1								35
	14	10	7	7	7	12	10	4	4												66
	Total	464	373	272	195	118	72	58	30	15	8	1	3	1						2	2637

2. Chum salmon, シロザケ

Species	No. of fishing	Fork length (cm)													
		26.5	27.5	28.5	29.5	30.5	31.5	32.5	33.5	34.5	35.5	36.5	37.5	38.5	39.5	40.5
Chum salmon	1															1
	2															
	3															
	4															
	5							1								
	6						4	10	12	5	1		1		1	1
	7					1	2	1								
	8				1		6	2	5	1						1
	9				1		5	10	10	6	3					
	10						1	1	1							
	11								2				1	1	2	2
	12	1	1	1	7	21	58	38	9	3	5	2	1			
	13							1								
	14					2	3	4	15	19	14	6	5		2	1
	Total	1	1	1	9	24	79	68	54	34	23	8	8	1	5	6

Species	No. of fishing	Fork length (cm)														
		41.5	42.5	43.5	44.5	45.5	46.5	47.5	48.5	49.5	50.5	51.5	52.5	53.5	54.5	55.5
Chum salmon	1				1	1	3	1	1	6	6	1	3	5	8	1
	2							2	1		3	1	2		3	2
	3							2			1	1	2	2	1	2
	4		1		1		1	6	7	6	7	5	5	1	6	3
	5			4	2	8	3	4	3	3	3	5	4	3	2	1
	6	1	1		1	2	1	1		1	1	1				1
	7		1	1												
	8	1	1	4	3	1	1		1		1					
	9	2	3	8	12	20	19	36	31	21	18	14	11	6	2	6
	10	3	2	5	5	7	8	20	10	9	4	9	5	5	1	7
	11	1	1	2	2	4	9	14	11	10	7	4	5	3	5	2
	12		2	1	4	5	6	7	4	7	2	2		2	4	2
	13		1													1
	14	2	4	3	1	1	2	1		2	1	4	4		2	5
	Total	10	17	28	32	49	53	94	69	65	54	47	41	27	34	33

Species	No. of fishing	Fork length (cm)												n
		56.5	57.5	58.5	59.5	60.5	61.5	62.5	63.5	64.5	65.5	66.5	67.5	
Chum salmon	1	3	7	4	2	2	3	2						61
	2		2	2			2							20
	3			1	2		1							15
	4	1	6	1	3	1	7			1				69
	5		2	3	2		2		1		1			57
	6			1										47
	7													6
	8													29
	9	1	3	2										250
	10	2	3											108
	11			1				2					1	92
	12	2	1						1					199
	13	2	3		1	3	2		1					15
	14	1		1	1						2			108
	Total	12	27	16	11	6	17	4	3	1	3		1	1076

3. Sockeye salmon, ベニザケ

Species	No. of fishing	Fork length (cm)														
		26.5	27.5	28.5	29.5	30.5	31.5	32.5	33.5	34.5	35.5	36.5	37.5	38.5	39.5	40.5
Sockeye salmon	1															
	2															
	3															
	4							1	2	2	4	2	3	5		
	5					1	1	1	3	7	1	1	1			4
	6								2			2				
	7														1	
	8						1									1
	9															
	10										1			1		
	11										1	1	4		1	
	12							2			1	1	1			
	13										1	1	1			1
	14										1					
	Total					1	2	4	7	9	10	8	10	6	2	6

Species	No. of fishing	Fork length (cm)														
		41.5	42.5	43.5	44.5	45.5	46.5	47.5	48.5	49.5	50.5	51.5	52.5	53.5	54.5	55.5
Sockeye salmon	1	3	11	19	16	9	15	5	3	4	1					
	2															1
	3													1		1
	4	5	1	1		1	2	4	4	7	4	2	3	5	7	6
	5	1	1	3	3	10	7	16	6	9	9	3	1	10	2	1
	6		2	3		1					1					2
	7				1											
	8				1	1					1		1	1		
	9						1	3	1		1					2
	10			1	3	3	3	4	2	4	3	7	4	5	2	4
	11						3		1	1		2	1	1		
	12															
	13	1			1	1	2	1			3				1	1
	14			1	2	3	6	4	2	5	5	4	3	3	3	3
	Total	10	15	28	27	29	39	37	19	30	28	18	13	26	15	21

Species	No. of fishing	Fork length (cm)													n
		56.5	57.5	58.5	59.5	60.5	61.5	62.5	63.5	64.5	65.5	66.5	67.5	68.5	
Sockeye salmon	1														86
	2	1		1											3
	3	1	1				1								5
	4	3	2	1	4	2									83
	5	5	5	1	1										114
	6	1			1				1	1	2				19
	7														2
	8														7
	9	1		1											10
	10	4	5	1		1	1	2	2		1			1	65
	11	1				2		2							21
	12		2												7
	13	1		4	2	1	1								24
	14		3	3							1				52
	Total	18	18	12	8	6	3	4	3	1	4			1	498

4. Silver salmon, ギンザケ

Species	No. of fishing	Fork length (cm)																
		48.5	49.5	50.5	51.5	52.5	53.5	54.5	55.5	56.5	57.5	58.5	59.5	60.5	61.5	62.5	71.5	n
Silver salmon	1																	
	2																	
	3																	
	4																	
	5																	
	6																	
	7	1				1			1	1								4
	8																	
	9	1		1		1	1	1		1	1	3	1	1	1	2	1	16
	10							1	1									2
	11																	
	12																	
	13				1			2	1				2					6
	14					1	1			2	1	1						6
	Total	2		1	1	3	2	4	3	4	2	4	3	1	1	2	1	34

5. King salmon, マスノスケ

Species	No. of fishing	Fork length (cm)											
		45.5		71.5	72.5	73.5	74.5	75.5	76.5	77.5	78.5	79.5	n
King salmon	1			1									1
	2												
	3												
	4												
	5												
	6												
	7												
	8											1	1
	9												
	10												
	11	1											1
	12												
	13												
	14				1								1
	Total	1		1	1							1	4

III. Distribution of body length in each sample caught with different mesh sizes of the net
(網目合別体長分布)

Nearly all of the fisn caught were subjected to the measurement.

Table 15. Distribution of length of salmon taken in various

Mesh size of the net used (Sun)	Species	Fork length (cm)																
		26.5	27.5	28.5	29.5	30.5	31.5	32.5	33.5	34.5	35.5	36.5	37.5	38.5	39.5	40.5	41.5	42.5
2.5	Pink salmon											1		2	4	10	15	21
	Chum salmon		1		7	13	56	42	21	27	15	7	3		1	3	1	2
	Sockeye salmon						1	1	4	2	6	3	7	1			1	
	Silver salmon																	
	King salmon																	
	Total		1		7	13	57	43	25	29	21	11	10	3	5	13	17	23
3.0	Pink salmon												1	4	3	28	60	103
	Chum salmon					4	5	9	7	3	2	1	3	1	3		4	7
	Sockeye salmon								1	2	1	2	1	3	1	4	5	3
	Silver salmon																	
	King salmon																	
	Total					4	5	9	8	5	3	3	5	8	7	32	69	113
3.5	Pink salmon													1	8	26	57	160
	Chum salmon					2	2		1							1	3	4
	Sockeye salmon											1		1	1	1		
	Silver salmon																	
	King salmon																	
	Total					2	2		1			1		2	9	28	60	164
4.0	Pink salmon							1								5	18	42
	Chum salmon	1			2	3											1	2
	Sockeye salmon																	
	Silver salmon																	
	King salmon																	
	Total	1			2	3		1								5	19	44
4.2	Pink salmon																	1
	Chum salmon			1			2	1										
	Sockeye salmon											1						
	Silver salmon																	
	King salmon																	
	Total			1			2	1				1						1
4.5	Pink salmon														1	4	5	4
	Chum salmon					1	1	3					1					
	Sockeye salmon					1		1								1		
	Silver salmon																	
	King salmon																	
	Total					2	1	4					1		1	5	5	4
San-mai Ami	Pink salmon									1			3	2	2	10	20	27
	Chum salmon					1	13	13	25	4	6		1		1	2		3
	Sockeye salmon						1	2	2	5	3	1	2	1			1	1
	Silver salmon																	
	King salmon																	
	Total					1	14	15	27	10	9	1	6	3	3	12	21	31

mesh size of the net on 1957 cruise to Aleutian waters

43.5	44.5	45.5	46.5	47.5	48.5	49.5	50.5	51.5	52.5	53.5	54.5	55.5	56.5	57.5	58.5	59.5	60.5	61.5	62.5	63.5	64.5	65.5
23	10	7	5																			
1		4	2	2	2				1													
1			2	1	1			1														
																1						
25	10	11	9	3	3			1	1							1						
100	84	40	29	18	17	19	16	11	4	4		1	1									
8	7	7	8	8	8	6	6	5	2	1	2							1		1		
4	2	5	6	6	1	2	3	1	2	2	2	1	1	2	1	1						
											1											
112	93	52	43	32	26	27	25	17	8	7	5	2	2	2	1	1		1		1		
190	198	137	98	56	24	11	6	3									2					
14	15	19	18	27	13	10	10	4	10	5	2	2		6	1	1	2					
	3	8	5	12	7	6	2	4	4	3	1	1	1		1				1	1		
													1			1		1				
204	216	165	121	95	44	27	18	11	14	8	3	3	2	6	2	2	4	1	1	1		
72	135	158	133	100	62	28	23	13	6													
1	6	16	22	50	41	41	28	33	25	15	15	17	7	6	5	5	1	5	2	1		
1	3	3	7	8	5	16	12	10	7	12	9	10	8	8	5	3	1	3	1			1
					1		1	1	3	1	2	2	2	1	2	1						
74	144	177	162	158	109	85	64	57	41	28	26	29	17	15	12	9	2	8	3	1		1
1	2	2	6	2	6	4	3	2	1	1	1											
					1	3	3	4	2	3	4	5	2	3	2			1				
						1	1	1		3	1	2	1	2	1	2	2			1	1	2
					1																	
1	2	2	6	2	8	8	7	7	3	7	6	7	3	5	3	2	2	1		1	1	2
9	11	9	7	13	8	13	10		4	3		2										
		1		2	3	4	5	1	1	2	11	7	3	12	7	5	3	9	2	1	1	2
2		2	2	2		2	4	1		5	2	6	7	5	4	2	3		2	1		1
										1	1		1	1	2		1		1			
11	11	12	9	17	11	19	19	2	5	11	14	15	11	18	13	7	7	9	5	2	1	3
35	28	21	11	8	3	1	1	1														
4	4	2	3	5	1	1	1	1	1			2			1			1				1
1	3	1	2	3	2		3	1		1		1		1								
											1								1			
		1																				
40	35	25	16	16	6	2	5	3	1	3	1	3		1	1			1	1			1

Table 15. (Continued)

Mesh size of the net used (Sun)	Species	Fork length (cm)																	n
		66.5	67.5	68.5	69.5	70.5	71.5	72.5	73.5	74.5	75.5	76.5	77.5	78.5	79.5				
2.5	Pink salmon																		98
	Chum salmon																		211
	Sockeye salmon																		32
	Silver salmon																		1
	King salmon																		
	Total																		342
3.0	Pink salmon																		541
	Chum salmon																		119
	Sockeye salmon																		65
	Silver salmon																		1
	King salmon																		
	Total																		728
3.5	Pink salmon																		891
	Chum salmon																		172
	Sockeye salmon																		65
	Silver salmon																		3
	King salmon																		
	Total																		1217
4.0	Pink salmon																		795
	Chum salmon		1																352
	Sockeye salmon			1															134
	Silver salmon																		17
	King salmon																	1	1
	Total		1	1														1	1299
4.2	Pink salmon																		32
	Chum salmon																		37
	Sockeye salmon																		22
	Silver salmon																		1
	King salmon																		
	Total																		92
4.5	Pink salmon																		103
	Chum salmon																		88
	Sockeye salmon																		56
	Silver salmon						1												9
	King salmon						1	1											2
	Total						2	1											258
San-mai Ami	Pink salmon																		174
	Chum salmon																		97
	Sockeye salmon																		38
	Silver salmon																		2
	King salmon																		1
	Total																		312

18. Data on Stomach Contents of Salmon
(鮭鱒胃内容物記録)

The stomach samples were taken from the fish immediately after they were hauled on the deck, and placed in formalin liquid for storage without delay. In the table digestibility is roughly shown by symbols, A, B, and C, in order from high degree to low degree.

Stomach contents were weighed separately by major distinguishable groups. Their wet weight determination was made after removing water from them by rolling them on blotting paper.

Measurement was made by the members of the Chair of Planktology of the University.

Table 16. Data on stomach contents of salmon on 1957 cruise to Aleutian waters

No. of fishing	Fish from which stomachs were sampled				Stomach contents (gr)										
	Species	Sex	Fork length (cm)	Body weight (gr)	Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
1	Pink salmon (カラフトマス)	♀	41.5	850	A									8.1	8.1
		〃	44.5	1050	A									14.6	14.6
		〃	44.0	1050	C					7.0					7.0
		〃	39.5	750	Empty										0
		〃	42.3	900	〃										0
		〃	42.0	950	C				0.6	6.5	1.3	0.9	0.8		10.1
		〃	42.3	950	Empty										0
		〃	43.5	950	〃										0
		〃	43.5	1000	B							0.3		6.0	6.3
		〃	40.5	800	B					0.8				1.6	2.4
		〃	41.0	800	A									0.2	0.2
		〃	41.5	750	A									2.0	2.0
		〃	47.0	1200	C					10.3					10.3
		♂	48.0	1200	B					0.9				18.2	19.1
		〃	41.5	750	A									6.7	6.7
		〃	45.5	1050	C					16.0					16.0
		〃	42.5	950	C					18.6					18.6
		〃	40.5	1050	B					1.5				6.5	8.0
		〃	44.5	950	Empty										0
		〃	46.5		A									6.5	6.5
		〃	41.0	800	A									5.2	5.2
		〃	43.5	900	B						0.5			2.1	2.6
		〃	44.0	950	A									1.5	1.5
	Chum salmon (シロザケ)	♀	54.0	1950	A									27.7	27.7
		〃	55.5	1900	A									7.5	7.5
		〃	53.0	2200	A									4.5	4.5

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled: Species	Sex	Fork length (cm)	Body weight (gr)	Stomach contents (gr): Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
1	Chum salmon (シロザケ)	♀	61.0	3000	B						1.0			23.0	24.0
		〃	53.5	2200	A									7.5	7.5
		〃	60.0	2500	A									10.4	10.4
		〃	67.0	2700	A									0.3	0.3
		〃	61.0	2950	B						0.2			6.5	6.7
		〃	54.0	1900	A									14.7	14.7
		〃	55.0	2200	A									2.3	2.3
		♂	57.5	2700	A									6.0	6.0
		〃	56.0	2000	A									15.5	15.5
		〃	58.0	2800	A									20.0	20.0
		〃	48.0	1450	A									2.5	2.5
		〃	55.0	2050	B						1.0			1.8	2.8
		〃	59.0	2700	A									21.2	21.2
		〃	56.5	2150	A									1.9	1.9
		〃	57.0	2450	A									2.5	2.5
		〃	55.0	2250	A									2.5	2.5
2	Pink salmon (カラフトマス)	♀	43.0	900	A									1.5	1.5
		〃	46.5	1100	B						0.8			0.4	1.2
		〃	41.5	850	A									0.3	0.3
		〃	44.0	1000	A									0.1	0.1
		〃	42.0	950	B	0.1									0.1
		〃	45.0	1050	B						1.4			2.0	3.4
		〃	47.0	1100	C							2.6			2.6
		〃	45.0	1050	A									0.5	0.5
		〃	42.0	850	B						0.8			6.1	6.9
		〃	42.5	900	C						0.6				0.6
		〃	42.0	950	A									0.3	0.3
		♂	43.0	1000	Empty										0
		〃	45.0	1100	C						6.7				6.7
		〃	40.0	750	C						1.8				1.8
		〃	42.5	900	C					1.5					1.5
		〃	42.5	800	Empty										0
		〃	44.5	1100	〃										0
		〃	42.5	800	C							1.7			1.7
		〃	47.5	1200	C						6.2	1.5	2.0		9.7
		〃	45.0	1050	C						7.0				7.0
		〃	50.0	1300	A									6.7	6.7
		〃	45.5	1000	A									7.2	7.2
		〃	43.0	750	A									0.2	0.2

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled				Stomach contents (gr)										
	Species	Sex	Fork length (cm)	Body weight (gr)	Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
2	Pink salmon (カラフトマス)	♂	46.5	1150	Empty										0
		?	40.5	800	B						0.6			1.5	2.1
		〃	43.5	950	A									0.5	0.5
		〃	44.5	950	B						2.5			1.7	4.2
	Chum salmon (シロザケ)	♀	57.7	2350	A									16.1	16.1
		〃	47.9	1420	A									7.2	7.2
		〃	54.3	1950	A									3.4	3.4
		〃	52.2	1700	B						1.5			5.0	6.5
		〃	59.5	2500	A									7.7	7.7
		〃	54.9	2270	A									2.9	2.9
		〃	51.6	1800	B						1.0			6.4	7.4
		〃	52.7	1900	A									10.5	10.5
		〃	50.0	1500	A									7.5	7.5
		〃	57.2	2200	B						2.8			9.4	12.2
		〃	50.0	1650	Empty										0
		〃	53.6	1950	B						0.5			11.0	11.5
		♂	57.2	2300	A									12.6	12.6
		〃	53.8	2050	B						1.6			13.6	15.2
		〃	47.5	1250	A									7.1	7.1
		〃	46.6	1300	A									9.0	9.0
		〃	61.0	2750	A									19.2	19.2
		〃	50.0	1400	A									7.5	7.5
		〃	49.4	1450	A									19.2	19.2
	Sockeye salmon (ベニマス)	♀	58.6	2400	C						2.0				2.0
		〃	55.8	2250	A									0.4	0.4
		♂	54.8	1850	Empty										0
3	Pink salmon (カラフトマス)	♀	41.5	950	A									1.4	1.4
		〃	43.0	1000	B						2.8			1.6	4.4
		〃	44.0	950	Empty										0
		〃	43.5	1150	C						5.5				5.5
		〃	43.5	950	Empty										0
		〃	44.0	1050	〃										0
		♂	45.0	1100	〃										0
		〃	46.5	1250	〃										0
		〃	43.0	950	〃										0
		〃	43.5	1150	〃										0
		〃	49.0	1200	B						4.5			0.5	5.0
		〃	44.5	1050	Empty										0

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled				Stomach contents (gr)											
	Species	Sex	Fork length (cm)	Body weight (gr)	Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
3	Pink salmon (カラフトマス)	♂	44.5	1050	〃										0
		〃	45.0	1100	〃										0
		〃	43.5	1050	A									0.2	0.2
		〃	45.0	1150	C						4.6				4.6
		〃	46.5	1100	A									0.2	0.2
		〃	44.0	900	Empty										0
		〃	46.5	1100	〃										0
		〃	42.0	950	〃										0
		〃	43.5	1000	〃										0
	Chum salmon (シロザケ)	♀	56.6	2500	B	45.2								3.5	48.7
		〃	52.7	1700	A									7.2	7.2
		〃	53.0	1900	A									9.8	9.8
		〃	52.3	1800	A									8.1	8.1
		〃	57.8	2200	B						0.2			18.5	18.7
		〃	56.0	2400	A									7.0	7.0
		〃	54.8	1150	A									8.8	8.8
		〃	53.9	1950	A									3.9	3.9
		〃	48.0	1200	A									6.5	6.5
		〃	51.3	1500	A									5.5	5.5
		〃	51.4	1750	A									3.0	3.0
		♂	54.6	2000	Empty										0
		〃	49.1	1400	A									4.9	4.9
		〃	47.2	1150	A									4.5	4.5
	Sockeye salmon (ベニマス)	♀	56.7	2450	A									0.6	0.6
		〃	53.4	1700	C						5.0				5.0
		〃	54.5	1900	Empty										0
		♂	55.8	2200	A									1.0	1.0
		〃	60.4	2700	Empty										0
4	Pink salmon (カラフトマス)	♀	45.0	1200	C		0.4			8.4	2.8				11.6
		〃	43.0	1000	A									1.0	1.0
		〃	43.5	1000	B					2.0	9.5			1.0	12.5
		〃	44.5	1100	C		0.8			12.5	6.4				19.3
		〃	45.0	1150	B					2.8				1.1	3.9
		♂	46.5	1200	C					6.7	0.5				7.2
		〃	44.0	1050	C	3.5			0.3	9.5	3.5				16.8
		〃	46.0	1200	C	11.3									11.3
		〃	41.0	750	C					1.2	1.1		0.2		2.5
		〃	44.0	1050	B					2.9				0.3	3.2

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled: Species	Sex	Fork length (cm)	Body weight (gr)	Stomach contents (gr): Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
4	Pink salmon (カラフトマス)	♂	42.0	950	C					6.1	1.1				7.2
		〃	45.0	1050	C		0.2					5.6			5.8
		〃	44.0	1150	B					2.5	2.6		0.1	1.7	6.9
		〃	42.5	1000	B					12.2	1.1			1.7	15.0
		〃	44.0	1000	B					3.0				1.5	4.5
		〃	44.0	1000	B					1.9				1.0	2.9
		〃	45.0	1200	C					1.6					1.6
		〃	47.0	1300	C		0.3			10.9					11.2
		〃	47.0	1350	A									12.0	12.0
		〃	46.0	1250	C					11.5					11.5
		〃	40.0	700	C					9.4	2.2				11.6
		〃	45.0	1100	C					95.0					95.0
		〃	47.5	1450	C		0.6			4.9					5.5
		〃	45.0	1200	C					4.8					4.8
		?	42.0	1500	C					8.4					8.4
	Chum salmon (シロザケ)	♀	47.5	1700	B						0.8			2.9	3.7
		〃	48.5	1150	A									11.7	11.7
		〃	58.0	2000	A									6.8	6.8
		〃	62.5	3000	A									21.8	21.8
		〃	57.5	2150	B						2.0			13.0	15.0
		〃	49.0	1400	A									12.7	12.7
		〃	46.0	1050	A									6.5	6.5
		〃	50.0	1450	B						0.3			6.5	6.8
		〃	45.0	1150	A									5.4	5.4
		〃	49.0	1500	A									1.0	1.0
		♂	50.0	1500	B					1.7				13.0	14.7
		〃	61.0	2700	A									4.3	4.3
		〃	67.0	2900	A									2.0	2.0
		〃	43.0	850	A									0.4	0.4
		〃	48.5	1250	A									3.5	3.5
		〃	47.0	1150	A									0.5	0.5
		〃	54.0	2050	A									10.0	10.0
		〃	46.0	1100	A									6.2	6.2
		〃	51.0	1400	B					0.6				0.8	1.4
		〃	48.0	1250	B					0.2	0.5			5.0	5.7
		?	52.0	1600	A									6.5	6.5
	Sockeye salmon (ベニマス)	♀	49.0	1200	Empty										0
		〃	55.5	2450	C		0.2				7.0				7.2
		〃	32.0	350	A									0.2	0.2

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled: Species	Sex	Fork length (cm)	Body weight (gr)	Stomach contents (gr): Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
4	Sockeye salmon (ベニマス)	♀	53.5	2250	Empty										0
		〃	54.0	2000	A									0.6	0.6
		〃	55.0	2050	C							0.4			0.4
		〃	54.5	2100	A									2.8	2.8
		〃	54.0	2200	B						2.7	0.8			3.5
		〃	42.0	900	A									0.1	0.1
		〃	51.0	1650	C					0.9					0.9
		〃	44.0	1100	Empty										0
		♂	36.0	550	B					0.3				0.4	0.7
		〃	55.0	2300	C					3.2					3.2
		〃	55.0	2200	Empty										0
		〃	50.0	1400	C					2.5					2.5
		〃	48.0	1500	C						1.6				1.6
		〃	54.0	2200	C					6.8					6.8
		〃	37.0	650	A									0.5	0.5
		〃	49.5	1350	A									0.5	0.5
		〃	53.0	1750	A									0.5	0.5
		〃	32.5	350	Empty										0
		〃	51.0	1950	〃										0
		〃	48.5	1450	A									3.2	3.2
		?	59.0	2700	B						2.3			1.6	3.9
	Silver salmon (ギンザケ)	♂	53.5	1700	C		1.0			1.7					2.7
		〃	50.0	1500	C						1.7				1.7
5	Sockeye salmon (ベニマス)	♀	47.5	1250	A									3.2	3.2
		〃	57.0	1100	A									0.2	0.2
		〃	47.5	1300	Empty										0
		〃	53.0	1850	A									3.0	3.0
		〃	29.0	350	Empty										0
		〃	45.5	1000	C							1.1			1.1
		〃	41.5	800	Empty										0
		〃	50.0	1400	C							4.5			4.5
		〃	59.0	2600	A									6.5	6.5
		〃	47.0	1250	A									2.3	2.3
		〃	52.0	1600	A									2.8	2.8
		〃	46.0	1050	A									1.2	1.2
		〃	47.0	1150	B							1.5		2.6	4.1
		〃	57.0	2250	B						5.5			6.7	12.2
		〃	50.0	1500	A									2.5	2.5
		♂	50.0	1100	A									0.2	0.2

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled: Species	Sex	Fork length (cm)	Body weight (gr)	Stomach contents (gr): Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
5	Sockeye salmon (ベニマス)	♂	55.0	2150	A									0.5	0.5
		〃	32.0	300	Empty										0
		〃	49.0	1200	B							1.0		0.5	1.5
		〃	53.5	1700	A									0.1	0.1
		〃	53.0	1500	A									0.5	0.5
		〃	40.0	700	Empty										0
		〃	44.5	950	A									0.2	0.2
		〃	56.0	2050	Empty										0
		〃	45.5	1000	〃										0
6	Pink salmon (カラフトマス)	♀	42.0	1000	B						1.0		1.6	5.0	7.6
		〃	39.5	760	C						3.1				3.1
		〃	42.5	1050	B						12.4		0.5	1.1	14.0
		〃	44.0	1100	A									0.3	0.3
		〃	44.0	1200	C					18.5	5.0	4.7			28.2
		〃	41.0	760	B		0.1			0.1	0.2			2.0	2.4
		〃	37.5	520	A									0.1	0.1
		〃	41.0	900	C						6.7				6.7
		〃	42.5	940	C					9.2	8.5				17.7
		〃	43.0	1020	B						18.3			5.5	23.8
		〃	45.0	1100	C					0.6	4.0				4.6
		〃	43.5	1050	B					1.2	13.1			5.6	19.9
		〃	30.4	355	A									2.0	2.0
		〃	32.6	370	A									2.0	2.0
		♂	42.5	1220	A									1.0	1.0
		〃	41.5	1100	C						41.5				41.5
		〃	42.0	900	B				0.2	9.0	0.3	0.5		6.5	16.5
		〃	46.0	1420	C		0.3				46.8				47.1
		〃	39.5	850	C						2.2				2.2
		〃	41.0	910	B						5.5			5.5	11.0
		〃	42.0	1050	B					6.0	4.0			0.5	10.5
		〃	43.5	1200	C		0.4		1.6	6.0	16.5				24.5
		〃	40.0	840	C						11.3				11.3
		〃	31.0	335	A									3.0	3.0
		〃	33.1	375	B					4.1	0.8			0.9	5.8
		?	33.7	405	A									3.0	3.0
		〃	32.0	370	A									4.5	4.5
		〃	32.5	345	A									1.5	1.5

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled: Species	Sex	Fork length (cm)	Body weight (gr)	Stomach contents (gr): Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
7	Silver salmon (ギンザケ)	♀	52.7	1780	C		0.5				27.7				28.2
		〃	54.7	2170	C	5.9			0.3		18.6				24.8
		♂	48.0	1370	C	34.2									34.2
9	Pink salmon (カラフトマス)	♂	52.0	1800	C							11.5	1.0		12.5
		〃	50.0	1750	A									1.7	1.7
		〃	49.0	1400	B						0.8	0.2		1.5	2.5
		?	49.0	1700	C	1.4				0.4		6.4	2.6		10.8
	Chum salmon (シロザケ)	♀	44.5	1230	A									6.0	6.0
		〃	50.0	1700	A									5.2	5.2
		〃	46.5	1300	A									3.5	3.5
		〃	45.5	1200	B						0.5			3.5	4.0
		〃	54.0	1850	B							0.2		6.5	6.7
		〃	54.5	2150	A									0.4	0.4
		〃	46.3	1250	A									5.8	5.8
		♂	54.5	1900	A									6.5	6.5
		〃	54.0	1900	A									8.7	8.7
		〃	46.5	1450	A									4.9	4.9
		〃	48.5	1600	A									5.2	5.2
		〃	49.5	1550	A									15.8	15.8
		〃	54.0	1500	A									4.2	4.2
		〃	59.5	1500	A									9.2	9.2
		〃	48.5	1450	A									3.5	3.5
		〃	53.5	2100	A									1.8	1.8
		〃	57.5	2400	A									8.5	8.5
		〃	55.5	2500	B							0.6	0.3	2.5	3.4
		?	49.3	1100	A									10.2	10.2
		〃	47.0	1250	C							0.7			0.7
		〃	46.0	1320	A									0.5	0.5
		〃	50.5	1700	B						0.5			13.0	13.5
		〃	50.5	1700	A									8.0	8.0
	Sockeye salmon (ベニマス)	♀	46.5	1400	C							9.3			9.3
		〃	49.5	1450	Empty										0
		〃	49.0	1300	A									2.7	2.7
		〃	57.5	2500	A									0.3	0.3
		♂	47.0	1230	A									0.8	0.8
		〃	55.5	2150	A									1.1	1.1
		〃	55.5	2100	C							7.5			7.5
		?	47.5	1250	Empty										0

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled: Species	Sex	Fork length (cm)	Body weight (gr)	Stomach contents (gr): Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
9	Silver salmon (ギンザケ)	♀	52.0	1800	Empty										0
		〃	56.5	2650	A									0.1	0.1
		〃	56.0	2600	A									0.2	0.2
		〃	57.5	2600	A									0.3	0.3
		〃	57.5	2800	C			60.8							60.8
		〃	71.0	3650	B		0.8	6.6						0.8	8.2
		〃	57.0	2650	C	8.4					4.5				12.9
		♂	53.5	2300	A									0.2	0.2
		〃	59.5	3150	C			13.8							13.8
		〃	61.0	3100	Empty										0
		〃	54.0	3300	B			43.0							43.0
		〃	61.0	3150	B			22.0						0.2	22.2
		〃	51.0	2000	C				15.5		1.5				17.0
		〃	61.0	3400	C			18.2							18.2
		〃	47.5	1600	C				3.5		0.2				3.7
11	Pink salmon (カラフトマス)	♀	46.5	1400	Empty										0
		〃	49.0	1400	B		0.8		0.7			8.3		0.5	10.3
		〃	50.0	1500	Empty										0
		〃	49.5	1450	A									0.7	0.7
		〃	52.4	1750	B		0.6		0.7		0.3			2.4	4.0
		〃	50.0	1600	B							1.0		1.2	2.2
		〃	50.5	1600	C							2.6			2.6
		〃	49.0	1600	C						0.2	0.1	0.2		0.5
		〃	47.5	1400	C		1.5				7.0				8.5
		〃	48.5	1350	Empty										0
		〃	49.0	1550	A									0.5	0.5
		〃	48.5	1400	C		2.0				3.0	1.0			6.0
		〃	49.5	1450	B		0.5		0.2		0.6	2.8		1.8	5.9
		〃	49.0	1550	Empty										0
		〃	47.5	1440	C					0.7	0.2	0.3			1.2
		〃	50.0	1500	B		0.4							2.2	2.6
		♂	52.0	1500	Empty										0
		〃	45.0	1500	〃										0
		〃	53.0	1700	C							0.1			0.1
		〃	47.5	1450	B		0.3			1.0	10.5	1.5		1.0	14.3
		〃	50.5	1750	C						25.0				25.0
		〃	50.5	1600	A									1.8	1.8
		〃	52.5	1950	C							0.6			0.6
		〃	51.0	1600	C						3.0				3.0
		?	49.0	1450	C								0.6		0.6

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled				Stomach contents (gr)										
	Species	Sex	Fork length (cm)	Body weight (gr)	Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
11	Chum salmon (シロザケ)	♀	53.0	1600	B						0.4	0.2		0.3	0.9
		〃	36.2	550	B							5.0		3.5	8.5
		〃	49.3	1350	B		0.3				0.3	0.5		0.3	1.3
		〃	47.9	1400	B						3.8			10.8	14.6
		〃	54.5	2000	A									1.9	1.9
		〃	42.4	900	C							10.2			10.2
		〃	47.7	1250	A									2.5	2.5
		〃	46.9	1200	B						0.3		0.4		0.7
		〃	46.8	1350	A									3.8	3.8
		〃	42.3	950	Empty										0
		〃	47.3	1300	A									2.0	2.0
		〃	49.0	1450	B							5.7	1.1	3.1	9.9
		♂	52.5	1650	A									0.6	0.6
		〃	54.6	2100	C							4.2	2.2		6.4
		〃	47.5	1350	A									0.2	0.2
		〃	51.0	1550	A									7.3	7.3
		〃	57.7	2300	A									2.9	2.9
		〃	50.5	1550	A									1.4	1.4
		〃	53.5	1950	B						0.7	8.8		0.9	10.0
		〃	39.0	700	C							3.5			3.5
		?	47.2	1400	C							7.5			7.5
		〃	48.8	1350	A									4.3	4.3
		〃	49.7	1350	A									5.5	5.5
		〃	44.3	1050	B							3.2		1.4	4.6
		〃	37.6	600	C							5.6			5.6
	Sockeye salmon (ベニマス)	♀	46.8	1250	C						0.2	0.9			1.1
		〃	60.3	3050	B						2.0		3.0	2.5	7.5
		〃	45.8	1150	Empty										0
		〃	56.8	2150	C	2.8						6.3			9.1
		〃	36.2	530	A									0.4	0.4
		〃	37.5	550	A									0.5	0.5
		〃	50.8	1600	B						12.5			9.5	22.0
		〃	45.8	1100	C							4.1			4.1
		〃	36.6	550	Empty										0
		♂	37.1	600	A									4.7	4.7
		〃	38.2	620	B		0.2					3.3		0.4	3.9
		〃	51.2	1800	B						1.2			2.7	3.9
		〃	48.5	1400	C							9.3	2.2		11.5
		〃	62.5	2850	B				0.7			0.5		1.8	3.0

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled: Species	Sex	Fork length (cm)	Body weight (gr)	Stomach contents (gr): Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
11	Sockeye salmon (ベニマス)	♂	52.4	1900	B						0.1	1.7		0.3	2.1
		?	52.5	1550	B	3.2					4.3			1.2	8.7
12	Chum salmon (シロザケ)	♀	29.7	300	A									3.1	3.1
		〃	48.6	1420	A									0.7	0.7
		〃	44.4	1070	C							1.3			1.3
		〃	32.0	330	A									0.3	0.3
		〃	42.0	800	A									4.9	4.9
		〃	31.5	350	A									6.0	6.0
		〃	49.2	1320	C							0.8			0.8
		〃	31.8	320	A									0.1	0.1
		♂	49.6	1480	A									1.1	1.1
		〃	48.8	1260	B							13.5		1.5	15.0
		〃	49.6	1580	C							9.6			9.6
		〃	44.4	1050	C							1.8			1.8
		〃	46.0	1260	A									2.2	2.2
		〃	53.4	1900	A									0.6	0.6
		〃	47.4	1230	C		0.2					10.0			10.2
		?	27.1	200	C						4.7				4.7
		〃	31.0	330	C						0.3	1.6			1.9
		〃	31.8	350	C							7.0			7.0
	Sockeye salmon (ベニマス)	♀	36.2	530	C							1.5			1.5
		〃	56.0	2080	A									0.4	0.4
		〃	36.0	490	Empty										0
		〃	36.4	500	〃										0
		♂	56.7	1900	〃										0
		?	32.0	330	C							2.4			2.4
13	Pink salmon (カラフトマス)	♀	48.4	1500	B					0.1	7.0	1.0		2.0	10.1
		〃	46.2	1300	B						14.5			4.5	19.0
		〃	48.8	1500	B						1.0	0.8		3.9	5.7
		〃	48.2	1700	A									2.3	2.3
		〃	47.0	1300	B		0.5			1.6	5.2	1.9	5.2	1.1	15.5
		〃	48.4	1500	C							0.1			0.1
		〃	47.0	1350	B		2.7				8.4	1.6	0.7	2.0	15.4
		〃	46.9	1300	B		0.7				6.3	0.6		0.2	7.8
		〃	45.1	1100	C			0.9							0.9
		〃	44.7	1100	B						3.7			1.1	4.8
		〃	43.3	1100	C		0.3				0.1				0.4
		〃	44.5	1100	Empty										0
		〃	49.5	1500	C							0.6			0.6
		〃	44.4	1150	A									2.9	2.9
		〃	45.8	1300	C		0.2					0.3		2.0	2.5
		〃	48.0	1500	B						8.5	2.5		4.0	15.0
		♂	49.8	1150	B		0.3		1.3		10.6	9.7		4.8	26.7
		〃	49.5	1500	Empty										0

Table 16. (Continued)

No. of fishing	Fish from which stomachs were sampled				Stomach contents (gr)										
	Species	Sex	Fork length (cm)	Body weight (gr)	Digestibility	Adult or young fish	Fish larva	Squid	Squid larva	Copepod	Euphausiid	Amphipod	Other groups	Unidentified fragments and mucus	Total
13	Pink salmon (カラフトマス)	♂	54.0	1500	A									8.4	8.4
		〃	50.2	1350	C		0.2					0.3			0.5
		〃	50.7	1150	B							15.0	0.3	4.5	15.8
		〃	48.3	1500	C						17.5				17.5
	Chum salmon (シロザケ)	♀	63.2	3200	A									8.3	8.3
		〃	58.8	2700	C						2.1	0.4			2.5
		〃	57.0	2450	A									7.5	7.5
		〃	55.9	2100	C							5.4			5.4
		〃	56.6	2450	B						1.3	5.4		6.8	13.5
		〃	56.5	2000	A									7.0	7.0
		〃	53.7	2300	B						0.1	4.0		3.0	7.1
		〃	60.5	3300	A									10.0	10.0
		〃	61.0	3300	B						9.8			11.5	21.3
		♂	55.5	2350	A									4.2	4.2
		〃	32.4	350	A									0.7	0.7
		〃	60.3	2700	B						0.8	1.5		5.5	7.8
		〃	58.4	2750	B						0.5			1.5	2.0
		〃	59.7	2400	A									0.8	0.8
		?	37.3	600	B						5.5	2.7		4.5	12.7
	Sockeye salmon (ベニマス)	♀	35.0	450	C							0.2			0.2
		〃	49.5	1530	A									0.6	0.6
		〃	46.2	1300	C							7.9			7.9
		〃	56.1	2250	B						2.7			1.2	3.9
		〃	57.5	2500	B							6.2		2.7	8.9
		〃	42.0	850	Empty										0
		〃	57.3	2550	B			3.5			22.2			4.0	29.7
		〃	46.1	1150	C						0.3	5.0	0.5		5.8
		〃	56.5	2620	C							15.6			15.6
		〃	57.2	2500	B						8.0	0.2		6.5	14.7
		〃	58.4	3000	C							7.4			7.4
		〃	51.0	1700	C							0.6			0.6
		〃	45.0	1150	A									1.5	1.5
		〃	50.0	1450	Empty										0
		♂	54.0	2300	C				1.9		2.7	6.0			10.6
		〃	37.7	600	A									0.4	0.4
		〃	39.8	850	C		0.5								0.5
		〃	59.2	2900	B						4.5			1.0	5.5
		?	35.8	500	C		0.4								0.4
		〃	44.3	950	B								0.3	0.1	0.4
		〃	45.0	1100	C						7.3				7.3
	Silver salmon (ギンザケ)	♀	55.5	2150	A									0.2	0.2
		〃	54.3	1850	C		0.6				1.8				2.4
		♂	55.2	2300	A									0.9	0.9
		〃	59.5	2800	C		0.3				13.5				13.8
		〃	51.3	1800	C		0.4				16.9				17.3
		〃	58.0	2450	B			1.8						2.1	3.9

19. Sight Records of Sea-Birds, Whales, etc.
(海鳥, 鯨等目視観察記録)

Objects in sight at sea are: (not approved by specialist)

Shearwaters: (ミズナギドリ類)

Puffinus leucomelas, Streaked shearwater, オオミズナギドリ

P. griseus, Sooty shearwater, ハイイロミズナギドリ

P. tenuirostris, Slender-billed shearwater, ハシボソミズナギドリ

Storm petrels: (ウミツバメ類)

Ocesanodroma leucorhoa leucorhoa, Leach's fork-tailed petrel, コシジロウミツバメ

O. furcata, Grey fork-tailed petrel, ハイイロウミツバメ

Auks: (ウミスズメ類)

Aethia cristatella, Crested auk, エトロフウミスズメ

Phaleris pusilla, Least auk, コウミスズメ

Synthlidoramphus antiqus, Ancient auk, ウミスズメ

Guillemots: (ウミガラス類)

Uria columba columba, Pigeon guillemot, ウミバト

U. calge inornata, Bering island guillemot, ウミガラス, ロツペンチヨウ, オロロンチヨウ

Puffins:

Lunda cirrhata, Tufted puffin, エトピリカ

Fratercula corniculata, Horned puffin, ツノメドリ

Skuas: (トウゾクカモメ類)

Stercorarius parasiticus parasiticus, Arctic skus, クロトウゾクカモメ

Albatrosses: (アホウドリ類)

Diomedea migripes, Black-footed albatross, クロアシアホウドリ

Gulls: (カモメ類)

Larus crassirostris, Japanese gull, Black-tailed gull, ウミネコ

L. occidentalis, Western gull

L. schistisagus, Slaty-backed gull, オオセグロカモメ

L. argentatus vegae, Vega herring gull, セグロカモメ

Plovers: (チドリ類)

Snipes: (シギ類)

Wild geese: (ノガモ類)

Migrant land birds: (陸鳥迷鳥)

Phylloscopus puscatus puscatus, Brown bush-warbler, ムジセツカ

Whales: (鯨類)

Balaenoptera physalus, Common rorqual, Finback, ナガスクジラ

B. musculus, Sulphur bottom, Blue whale, シロナガスクジラ

Physeter catodon, Sperm whale, Cachalot, マツコウクジラ

Marine mammals other than whales: (海獣類)

Eumetopias jubatus, Northern sea lion, トド

Callorhinus ursinus, Northern fur seal, オツトセイ

Phocaenoides dallii, Northern porpoise, キタイルカ

Table 17. Sight records of whales, etc. on 1957 cruise to Aleutian waters

Date	Hour (Ship's)	Position		Weather	Temperature		Objects in sight	Observer
		Latitude	Longitude		Air	Sea surface		
June 8	0630	41-59N	147-50E	o	6.0	6.8	1 Grey fork-tailed petrel	A. Togashi
9	1730	44-32.5N	150-53E	o	5.0	5.3	1 streaked shearwater	〃
10	0400	44-32.5N	151-08E	o	4.5	5.2	3 tufted puffins, 1 fur seal	〃
10	1200	45-02N	151-44E	d	4.0	5.1	1 tufted puffin	〃
11	0700	47-00N	154-05E	o	3.0	3.4	2 streaked shearwater	〃
11	1200	47-15N	154-30E	o	3.3	4.0	Russiom whale catcher boat, 4～6 sperm whale	S. Saito
12	0410	47-26.5N	154-38E	f	1.8	4.2	1 unknown kind of whale	M. Nakane
12	1454	46-01N	152-58E	o	3.8	4.6	1 large sperm whale	N. Masuda
12	1512	45-52N	152-46E	o	3.8	4.6	about 10 common rorqual	〃
12	1657	45-39N	152-30E	o	4.5	4.5	1 sperm whale directed NW	S. Abe
16	0645	43-00N	147-12E	o	5.0	7.0	1 fur seal	〃
16	1100	43-09N	147-40E	o	6.0	7.2	2 tufted puffins	A. Togashi
16	1615	43-37N	148-22E	o	5.0	5.8	1 fur seal	S. Abe
18	0526	46-33N	155-08E	f	4.1	3.8	2 finbacks directed NW	〃
18	0900	46-50N	155-48E	f	5.5	4.7	2 sperm whales	S. Sito
18	1130	47-01N	156-20E	f	5.5	4.9	3 grey fork-tailed petrels	A. Togashi
18	1640	47-26N	157-26E	o	5.2	5.0	1 streaked shearwater	〃
19	0500	47-40N	157-56E	o	4.5	5.1	6 slaty-backed gulls	〃
20	0530	48-24N	159-38E	o	5.0	5.5	4 streaked shearwaters, 2 slaty-backed gulls	〃
21	0700	49-39N	162-19E	o	5.1	4.2	5 streaked shearwaters	〃
22	0800	50-34N	165-25E	f	5.5	5.8	1 storm petrel	〃
22	1400	50-52N	166-05E	o	6.5	5.6	8 sooty shearwaters, 1 bering island guillemot	〃
23	0430	51-13.5N	167-10.1E	o	5.8	5.8	6 slaty-backed gulls, 4 storm petrels sighted all day	〃
24	0400	52-03.8N	169-35E	r	5.2	6.1	10 shearwaters, 2 slaty-backed gulls, 1 tufted puffin	〃
24	0700	52-07N	169-42E	d	5.1	6.2	2 shearwaters	〃
25	0400	52-50N	171-38E	r	5.6	5.8	4 shearwaters, 1 bering island guillemot	〃
26	1500	50-09N	171-25E	o	5.6	6.0	6 shearwaters, 3 storm petrels	〃

Table 17. (Continued)

Date	Hour (Ship's)	Position		Weather	Temperature		Objects in sight	Observer
		Latitude	Longitude		Air	Sea surface		
June 27	0950	48-40N	171-50E	o	7.7	7.3	4 finbacks directed E, only 1 large	S. Saito
27	2000	48-50N	172-43.5E	o	6.8	7.5	10~20 Leach's fork-tailed petrels	A. Togashi
28	0400	48-50N	172-43.5E	o	6.9	7.3	200~300 sooty shearwaters	〃
28	0620	49-05N	173-10E	o	7.2	7.5	1 sei whale directed NE, 1 sperm whale, about 50 shearwaters	S. Abe
28	0845	49-16N	173-35E	o	7.0	7.4	5 finbacks directed variously	S. Saito
28	1320	49-45N	174-33E	o	7.9	8.4	3 finhacks directed SW	N. Masuda
28	1830	50-15N	175-26E	o	6.4	7.7	about 100 shearwaters	M. Nakane
29	1930	51-30N	176-01E	o	7.1	7.4	about 400 shearwatrs, 2 black-footed albatross, 2 slaty-footed gulls	A. Togashi
30	1435	51-10N	179-27E	o	7.7	7.8	1 northern sea lion	M. Takahahi
July 1	1000	51-02N	179-17W	o	6.8	6.9	2 black-footed albatross, 1 shearwater	A. Togashi
1	1915	50-56N	179-54W	c	7.2	7.2	1 northern fur seal	S. Abe
2	0035	50-37N	179-13W	o	7.0	7.6	1 northern fur seal which caught salmon	T. Fujii
2	0530	50-50N	179-10W	o	7.0	7.2	8 tufted puffins, 6 shearwaters, 2 slaty-backed gulls	A. Togashi
3	0700	48-12N	178-55W	o	7.4	7.6	3 tufted puffins, 1 slaty-backed gull.	〃
3	1910	49-28N	176-42W	o	7.4	7.9	2 northern fur seals,	S. Abe
4	0630	50-37.5N	176-42W	o	7.0	7.4	2 tufted puffins, 1 shearwater	A. Togashi
5	0700	49-06N	172-57W	o	8.5	8.4	1 slaty-backed gull	〃
6	1530	51-17N	172-06W	c	8.8	8.2	1 sperm whale	N. Masuda
6	1723	51-34N	172-04W	o	9.0	8.7	1 northern fur seal	S. Abe
6	1807	51-41.5N	172-03W	o	9.0	8.8	1 northern fur seal	M. Nakane
7	0630	52-00N	171-55W	o	7.2	6.1	7 or 8 orcas directed N	S. Abe
7	0800	52-17N	172-03W	f	6.2	5.6	6 bering island guillemots, 2 black-footed albatross	A. Togashi
7	1700	53-26N	172-00W	c	7.5	8.0	3 northern fur seals	S. Abe
8	0600	53-44N	172-13W	o	8.0	7.5	7~8 blue whales or finhacks	〃
8	0940	53-45N	173-10W	o	8.8	8.0	10 northern porpoises	S. Saito
8	1200	53-46N	173-49W	o	10.4	7.8	4 tufted puffins, 5 bering island guillemots	A. Togashi
8	1904	53-45N	175-47W	o	9.0	7.0	1 northern fur seal	S. Abe

Table 17. (Continued)

Date	Hour (Ship's)	Position		Weather	Temperature		Objects in sight	Observer
		Latitude	Longitude		Air	Sea surface		
July 9	0930	53-17N	179-10.5W	o	7.9	7.2	4 streaked shearwaters, 2 tufted puffins, 1 black-footed albatross	A. Togashi
10	0500	52-51N	179-12.5W	r	6.5	6.5	1 sea lion, 6 ancient auks, 4 shearwaters, 1 tufted puffin	〃
10	1330	52-03N	179-25W	r	6.5	6.4	1 large sperm whale	N. Masuda
10	1600	52-11N	179-45W	f	6.2	5.3	7 sea lions, 5 tufted puffins, 4 shearwaters, 3 ancient auk	A. Togashi
10	1710	52-12N	179-49W	f	6.1	5.3	6～7 sea lions one of them caught	S. Abe
11	0700	52-18N	176-45W	o	7.5	7.0	6 shearwaters, 1 tufted puffin	A. Togashi
12	0700	53-06N	172-54E	b	7.5	7.9	2 shearwaters	〃
12	1000	53-06N	172-54E	b	9.2	8.2	about 200 shearwaters, 3 tufted puffins	〃
13	0800	52-56N	171-51E	o	7.8	7.9	4 sooty shearwaters	〃
13	1500	52-23.5N	170-25E	o	8.0	8.1	2 slaty-backed gull	〃
14	0900	52-01N	169-04E	o	7.2	7.7	3 sooty shearwaters, 1 tufted puffin	〃
14	1310	51-50N	168-33E	o	8.1	7.6	1 unknown kind of whale	N. Masuda
14	1430	51-45N	168-25E	o	7.7	7.8	3～4 unknown kind of whales	〃
18	1130	45-25N	152-40E	r	9.9	9.7	1 large sperm whale, 2 sperm whales	S. Saito
18	1500	45-08N	151-55E	r	10.2	10.3	2 sperm whales one of them large	N. Masuda
18	1704	44-56N	151-30E	o	10.0	10.2	2 northern fur seals	S. Abe
19	1710	42-45N	146-45E	f	15.0	13.2	3 northern porpoises	〃
20	0655	41-55N	144-09E	r	13.6	12.9	1 northern fur seal	〃

II

1957 CRUISE OF THE "HOKUSEI MARU" TO THE OKHOTSK SEA

北星丸昭和32年度オホーツク海域航海

1. Cruise Report
（航海報告）

Departure from Hakodate	June 12 （函館出港）
Arrival at Otaru	June 13 （小樽入港）
1st Cruise	
Departure from Otaru	June 15 （小樽出港）
First herring gill-net set	June 17 （鰊流網開始）
First hydrographic cast	June 17 （海洋観測開始）
Last herring gill-net haul	June 23 （鰊流網終了）
Last hydrographic cast	June 26 （海洋観測終了）
Arrival at Otaru	June 28 （小樽入港）
Covered 2208 miles in total 14 days at sea	（全航程2208浬，航海日数14日）

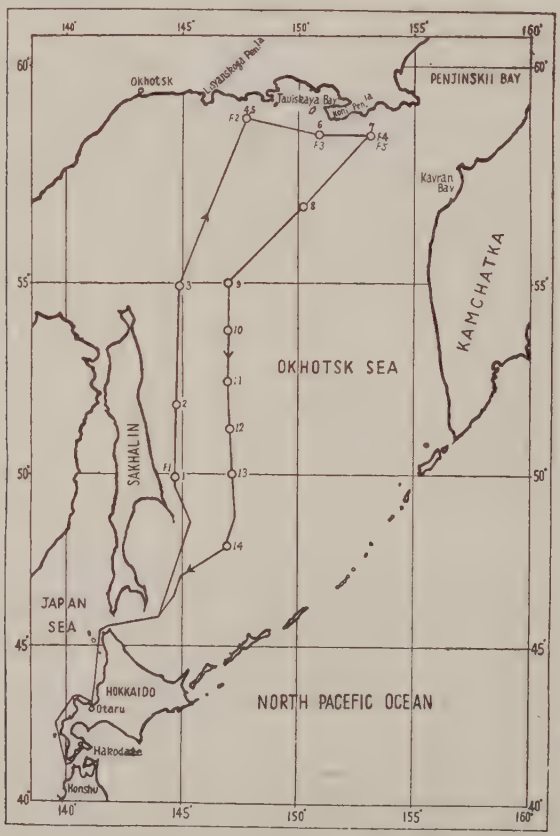

Fig. 7 Track of 1957 Ist cruise of the "Hokusei Maru" to the Okhotsk Sea
1–14 : Hydrographic stations
F1–F5 : Locations of herring gill-net set

2nd Cruise

Departure from Otaru	July 10 （小樽出港）
First hydrographic cast	July 12 （海洋観測開始）
First herring gill-net set	July 13 （鰊流網開始）
Last herring gill-net haul	July 25 （鰊流網終了）
Last hydrographic cast	July 27 （海洋観測終了）
Arrival at Otaru	July 29 （小樽入港）
Covered 3039 miles in total 20 days at sea	（全航程3039浬，航海日数20日）

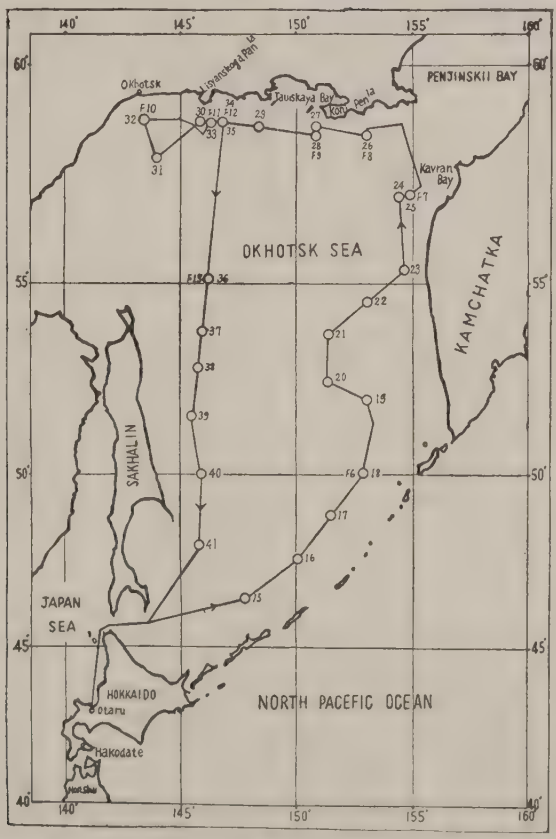

Fig. 8 Track of 1957 2nd cruise of the "Hokusei Maru" to the Okhotsk Sea
15–41 : Hydrographic stations
F6 F13 : Locations of Herring gill-net set

3rd Cruise

Departure from Otaru	Aug. 6 (小樽出港)
First hydrographic cast	Aug. 8 (海洋観測開始)
First herring gill-net set	Aug. 11 (鰊流網開始)
Last hydrographic cast	Aug. 15 (海洋観測終了)
Last herring gill-net haul	Aug. 17 (鰊流網終了)
Arrival at Otaru	Aug. 21 (小樽入港)

Covered 2185 miles in total 16 days at sea (全航程2185浬, 航海日数16日)

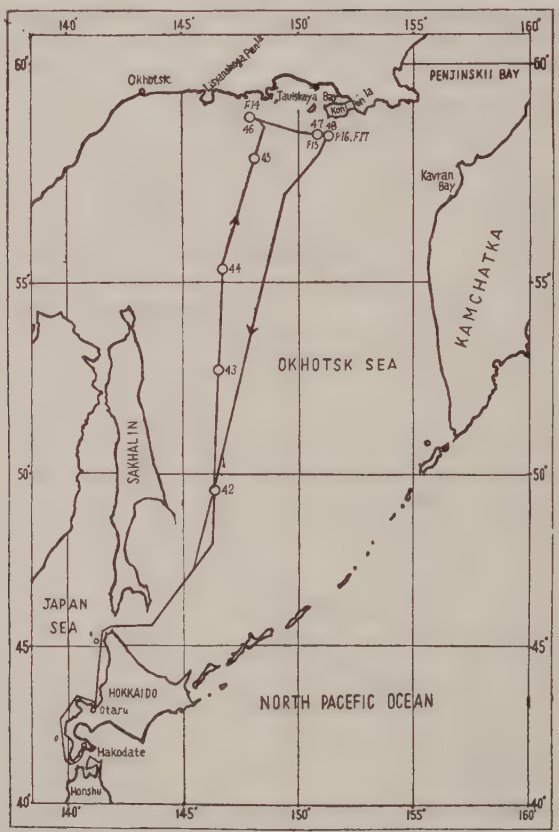

Fig. 9 Track of 1957 3rd cruise of the "Hokusei Maru" to the Okhotsk Sea
42-48 : Hydrographic stations
F14-F17 : Locations of Herring gill-net set

Departure from Otaru	Aug. 28 (小樽出港)
Arrival at Hakodate	Aug. 29 (函館帰港)

2. Members of Staff Aboard
（乗 船 者）

Captain	Seikichi Mishima	（船　　長　三　島　清　吉）
Crew（乗組員）		
Chief Officer	Shōichi Yamamoto	（一等航海士　山　本　昭　一）
Second Officer	Shingo Takenaga	（二等航海士　武　長　進　午）
Third Officer	Mitsufusa Satō	（三等航海士　佐　藤　光　房）
Chief Engineer	Yūhachi Yanagiya	（機　関　長　柳　谷　勇　八）
First Engineer	Minoru Fujita	（一等機関士　藤　田　　実）
Wireless Operator	Sirō Noguchi	（無線通信士　野　口　四　郎）
and 14 men（外14名）		
Research men（調査員）		
Professor	Sigeru Motoda (Biology)	（教　授　元　田　　茂，生　　物）
Assistant Professor	Motokazu Ueno (Fisheries)	（助教授　上　野　元　一，漁　　業）
Research Assistant	Yasuhito Inaba (Seamanship)	（助　手　稲　葉　恭　人，船舶運用）
Research Assistant	Tatsuaki Maeda (Fisheries)	（助　手　前　田　辰　昭，漁　　業）
Research Assistant	Yoshio Akiba (Physical oceanography)	（助　手　秋　葉　芳　夫，海　　洋）
Hokkaido Fisheries Experimental Station	Akira Fukuhara	（北海道水産試験場　福　原　　章）
Hokkaido Fisheries Experimental Station	Makoto Wakao	（北海道水産試験場　若　生　　允）
Hokkaido Fisheries Experimental Station	Osamu Tanaka	（北海道水産試験場　田　中　　修）
Hokkaido Fisheries Experimental Station	Zenryo Nakamura	（北海道水産試験場　中　村　全　良）
Cadets（実習生）		
33 cadets of Undergraduate Course of Pelagic Fishery		（遠洋漁業科学生　33名）
Total 63 persons（総員　63名）		

3. Research Committee
（調査委員）

Professor (Coordinater)	Ichirō Saitō (Fisheries)（代表教授　斎藤市郎，漁業）
Professor	Sigeru Motoda (Plankton)（教授　元田　茂，プランクトン）
Professor	Seichi Yamaguchi (Physical oceanography)（教授　山口生知，海洋）
Professor	Shin-ichi Satō (Ichthyology)（教授　佐藤信一，魚類）
Professor	Eiichi Tanikawa (Chemistry)（教授　谷川英一，化学）
Assistant Professor	Seikichi Mishima (Fisheries, Meteorology)（助教授　三島清吉，漁業，気象）
Lecturer	Ken-ichiro Kyushin (Herring)（講師　久新健一郎，餐源）

4. Specification of Hydrographic Stations
(海 洋 観 測 地 点)

Table 18. Hydrographic stations on 1957 cruise to the Okhotsk Sea

No. of Station	Ship's time		Greenwich time		Position		Depth of sea bottom (m)	Maximum depth of cast (m)
	Date	Hour	Dete	Hour	Latitude	Longitude		
Ho 1	06-17	2030～2130	06-17	1130～1230	49°-57′ N	144°-46′ E		185
Ho 2	06-18	1900～2000	06-18	1000～1100	51°-57′ N	144°-45′ E		457
Ho 3	06-19	1540～1630	06-19	0640～0730	55°-00′ N	144°-49′ E	192	149
Ho 4	06-20	1910～2000	06-20	1010～1100	58°-53′ N	147°-48′ E	130	100
Ho 5	06-21	0340～0400	06-20	1840～1900	58°-53′ N	147°-48′ E	130	100
Ho 6	06-21	1900～2000	06-21	1000～1100	53°-31′ N	150°-52′ E	120	100
Ho 7	06-22	1915～1945	06-22	1015～1045	58°-31′ N	153°-13′ E	128	97
Ho 8	06-23	1800～1850	06-23	0900～0950	56°-50′ N	150°-14′ E	170	147
Ho 9	06-24	1230～1330	06-24	0330～0430	55°-00′ N	147°-00′ E	965	500
Ho 10	06-24	2215～2310	06-24	1315～1410	53°-49′ N	147°-00′ E	1460	499
Ho 11	06-25	0800～0900	06-24	2300～2400	52°-30′ N	147°-00′ E		492
Ho 12	06-25	1645～1745	06-25	0745～0845	51°-14′ N	147°-06′ E	1260	500
Ho 13	06-26	0225～0410	06-25	1725～1910	50°-00′ N	147°-12′ E	1330	995
Ho 14	06-26	1730～1900	06-26	0830～1000	48°-00′ N	147°-00′ E		1188
Ho 15	07-12	0940～1125	07-12	0040～0225	46°-30′ N	148°-00′ E		866
Ho 16	07-12	2115～2220	07-12	1215～1320	47°-38′ N	150°-05′ E		927
Ho 17	07-13	0910～1010	07-13	0010～0110	48°-53′ N	151°-32′ E		927
Ho 18	07-13	1930～2100	07-13	1030～1200	50°-05′ N	152°-56′ E		914
Ho 19	07-14	1515～1555	07-14	0615～0655	52°-00′ N	153°-02′ E	690	599
Ho 20	07-14	2335～0035	07-14	1435～1535	52°-30′ N	151°-30′ E		433
Ho 21	07-15	0830～0920	07-14	2330～0020	53°-43′ N	151°-30′ E	750	415
Ho 22	07-15	1635～1725	07-15	0735～0825	54°-32′ N	153°-04′ E	450	324
Ho 23	07-16	0130～0140	07-15	1630～1640	55°-20′ N	154°-45′ E	69	49
Ho 24	07-16	1505～1625	07-16	0605～0725	57°-05′ N	155°-03′ E	290	200
Ho 25	07-16	1945～2025	07-16	1045～1125	57°-06′ N	154°-57′ E	220	200
Ho 26	07-17	1850～1915	07-17	0950～1015	58°-28′ N	153°-16′ E	120	100
Ho 27	07-18	1235～1310	07-18	0335～0410	58°-37′ N	150°-50′ E	115	100
Ho 28	07-18	1840～1905	07-18	0940～1005	58°-31′ N	150°-49′ E	126	100
Ho 29	07-19	1225～1300	07-19	0325～0400	58°-38′ N	148°-25′ E	120	97
Ho 30	07-19	2150～2235	07-19	1250～1335	58°-50′ N	145°-54′ E	124	98
Ho 31	07-20	0655～0735	07-19	2155～2235	58°-00′ N	144°-00′ E	147	100
Ho 32	07-20	1850～1915	07-20	0950～1015	58°-59′ N	143°-11′ E	78	74
Ho 33	07-21	1830～1850	07-21	0930～0950	58°-44′ N	146°-19′ E	130	100
Ho 34	07-22	1400～1430	07-22	0500～0530	58°-43′ N	145°-49′ E	140	100
Ho 35	07-22	2020～2040	07-22	1120～1140	58°-44′ N	146°-52′ E	140	100
Ho 36	07-24	1915～2005	07-24	1015～1105	55°-08′ N	146°-16′ E	830	731
Ho 37	07-25	1320～1448	07-25	0420～0548	53°-49′ N	145°-58′ E	1730	914

Table 18. (Continued)

No. of Station	Ship's time		Greenwich time		Position		Depth of sea bottom (m)	Maximum depth of cast (m)
	Date	Hour	Dete	Hour	Latitude	Longitude		
Ho 38	07–25	2210～2305	07–25	1310～1405	52°–53′ N	145°–44′ E		829
Ho 39	07–26	0825～0930	07–25	2325～0030	51°–35′ N	145°–25′ E	1290	995
Ho 40	07–26	1840～1920	07–26	0940～1020	50°–00′ N	145°–55′ E	610	500
Ho 41	07–27	0940～1035	07–27	0040～0135	48°–00′ N	145°–51′ E		985
Ho 42	08–08	1910～2010	08–08	1010～1110	49°–32′ N	146°–22′ E	720	424
Ho 43	08–09	1925～1955	08–09	1025～1055	52°–45′ N	146°–30′ E	1490	481
Ho 44	08–10	1250～1305	08–10	0350～0405	55°–20′ N	146°–40′ E	200	149
Ho 45	08–11	0700～0720	08–10	2200～2220	57°–55′ N	147°–57′ E	142	100
Ho 46	08–11	1935～2002	08–11	1035～1102	58°–51′ N	147°–56′ E	120	100
Ho 47	08–12	1520～1545	08–12	0620～0645	58°–27′ N	150°–49′ E	132	98
Ho 48	08–15	2020～2100	08–15	1120～1200	58°–24′ N	151°–15′ E	140	100

5. Items of Observations and Procedure at Sea
(調査項目及び海上作業)

Meteorological observations (気象観測)

Every-three-hour interval, covering the whole course.

Measurement of surface temperature (表面水温観測)

Every-hour interval, covering the whole course.

Hydrographic cast (海洋観測)

At 48 stations, covering depths from the surface usually to near sea bottom. An electric hydrographic winch 1.5 H.P. and a hand winch were used.

Analyses of water samples (試水分析)

Salinity was estimated after returning from the voyage.

Plankton sampling (プランクトン採集)

Vertical hauls with NORPAC Standerd Net (45cm × 180cm) from approximately 150m depth at each hydrographic station.

Underway Samplings with Handy Underway Plankton Catcher, Model 11, on the first cruise.

Simultaneous horizontal tows with Double Net (outer net 30cm × 150cm, bolting silk XX 13; inner net 30cm × 100cm, bolting silk GG26) at the depths of 0, 7, 14, 28, and 70m at five stations.

Horizontal tows with Double Net at the surface for ten minutes at a speed of about 2 knots on the first cruise.

Vertical hauls with Kitahara's Net, made of bolting silk XX 13, from approximately 100m depth at each hydrographic cast.

Fish larva net tow (稚魚ネット曳網)

With 130cm × 450cm stramin conical net (bolting silk, GG54, at the posterior portion) by making horizontal tow at the surface for ten minutes at low speed, at every hydrographic station as well as at sun-set daily while underway.

Herring gill-net operation (ニシン流網漁業試験)

17 operations were carried out at different locations.

Measurement of biological characters on fish caght by herring gill-net fishing (漁獲標本の生物学的測定)

Chemical studies on "Oily-herring" meat (油ニシン肉に関する化学的研究)

6. Publications issued up to the present
(発表された報告, 研究論文)

(1) Hokkaido Fisheries Experimental Station & Faculy of Fisheries, Hokkaido University, 1957. Research report of Oily-herring fishery in Northern Okhotsk Sea. 82p. (in Japanese)

7. Data on Meteorological Observations
(気 象 観 測 記 録)

Observations were made under sponsorship of ship's officers at every-three-hour interval at sea.

Y'Y' : Data and time in Greenwich Mean Time (Universal Time)

Movement of wind direction (dd) and speed (ff) were measured by means of aerovane type anemometer set on the top of pole on bridge at the height of 6 meters above the sea surface.

Measurements of air temperature (TT) and dew point temperature (TdTd) were made by means of Asmann aspiration dry and wet bulb thermometer set on the upper deck at the height of 5 metres above the sea surface.

TtTtTt : Temperature of surface water (00.0 C).

X : Uncertain.

Table 19. Data on metorological observation on 1957 cruise to the Okhotsk Sea

Date		Y	Q	$L_aL_aL_a$	$L_aL_aL_a$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_ST_S	T_aT_a	d_Wd_W	$T_aT_aT_a$
06	15	7	2	456	420	21	1	20	05	98	01	0	118	12						7	04	04	10	20	096
06	16	1	2	457	426	00		20	05	90	44	4	113	09						7	05	05	10	20	070
06	16	1	2	458	432	03		20	05	98	44	4	099	09						6	14	04	06	20	066
06	16	1	2	459	440	06	5	20	09	95	40	4	008	08						8	19	03	06	20	065
06	16	1	2	463	442	09		16	08	98	03	0	060	08	×	×	5	4	1	7	20	06	05	16	055
06	16	1	2	468	444	12		15	08	98	13	1	053	08						7	07	04	07	16	054
06	16	1	2	470	446	15		16	08	96	63	4	044	08						7	09	02	07	16	065
06	16	1	2	475	446	18	8	22	04	96	21	6	030	06	0	0	3	2	×	7	14	00	05	22	058
06	16	1	2	479	450	21	7	27	02	97	28	2	037	05	7	8	×	2	×	2	07	03	04	22	037
06	17	2	2	481	451	00		00	00	90	43	1	037	06						4	00	04	06	22	043
06	17	2	2	488	455	03	9	23	01	90	43	4	045	07	9	×	0	×	×	3	08	04	06	23	048
06	17	2	2	491	455	06	7	18	06	91	44	4	032	07	7	×	0	1	×	7	13	03	06	18	048
06	17	2	2	497	448	09	4	17	08	98	03	4	013	04	×	×	5	1	1	6	19	03	03	13	024
06	17	2	2	499	448	18	9	18	13	90	47	4	978	04	9	×	0	×	×	8	38	03	03	18	019
06	17	2	2	502	448	21	9	18	16	92	45	4	981	04	9	×	0	×	×	3	03	04	02	18	022
06	18	3	2	507	447	00	9	19	14	93	45	4	987	04	9	×	0	×	×	2	06	03	04	19	027
06	18	3	2	511	448	03		14	07	97	02	2	997	04	9	4	0	×	×	2	10	00	02	14	041
06	18	3	2	515	448	06		14	07	97	02	2	005	05						2	08	50	04	14	054
06	18	3	2	520	448	09	8	18	06	97	02	2	016	06	1	5	5	4	×	2	11	01	05	18	054
06	18	3	2	521	448	12		14	03	98	02	2	021	05						2	05	02	03	14	039
06	18	3	2	527	449	15		22	05	98	02	0	073	04						1	02	00	05	22	041
06	18	3	2	532	449	18		13	05	98	02	0	030	04	2	×	9	2	2	2	07	01	03	13	035
06	18	3	2	536	449	21	1	23	05	99	02	0	045	05						2	15	02	03	23	035
06	19	4	2	540	449	00	3	18	08	99	03	0	057	07						2	12	04	06	16	045
06	19	4	2	545	449	03	3	18	08	98	01	0	063	08						2	06	06	04	18	050
06	19	4	2	549	449	06	3	18	08	98	02	1	070	06						2	07	04	04	18	041
06	19	4	2	511	449	09	8	18	05	97	03	2	085	04						3	15	03	03	14	025
06	19	4	2	544	452	12	8	16	05	97	00	2	101	02						2	16	03	00	16	001
06	19	4	2	559	455	15	7	13	06	96	02	1	107	02						1	06	01	01	16	014

Table 19. (Continued)

Date		Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$
06	19	4	2	562	458	18	7	13	06	96	01	1	119	04						2	12	51	02	13	042
06	19	4	2	566	461	21		14	06	91	46	2	140	04						3	21	52	02	14	044
06	20	5	2	570	465	00		13	11	92	44	4	165	05	9	×	0	×	×	2	25	00	04	14	048
06	20	5	2	574	468	03		13	06	96	00	4	178	06						1	13	50	04	13	059
06	20	5	2	578	478	06		13	06	97	41	2	193	06						3	18	00	04	13	059
06	20	5	2	581	475	09	8	09	07	97	02	2	210	05						2	17	51	03	09	057
06	20	5	2	589	483	21	9	11	06	96	43	2	243	05	9	×	0	×	×			51	04	11	051
06	21	6	2	588	492	00	8	14	05	97	20	4	247	05						2	04	51	03	14	051
06	21	6	2	586	501	03	8	14	03	97	00	2	255	06						2	08	01	04	14	053
06	21	6	2	585	518	04	8	27	06	98	00	2	254	07						0	01	02	05	27	061
06	21	6	2	585	508	09	8	32	08	98	02	2	250	06	0	0	9	2	1	8	04	00	05	32	059
06	21	6	2	585	508	12	8	27	05	97	02	1	250	04	0	0	9	2	×	4	00	52	04	27	059
06	21	6	2	585	510	15	8	27	14	96	40	2	238	05	2	7	3	×	×	8	12	51	05	27	057
06	21	6	2	585	513	21	9	25	07	93	44	2	230	05	9	×	0	×	×	7	08	51	03	25	056
06	22	7	2	585	522	00	9	27	12	93	45	4	223	05	9	×	0	×	×	7	07	52	03	27	056
06	22	7	2	585	531	03	9	27	12	90	47	4	203	05	9	×	0	×	×	7	20	01	04	27	047
06	22	7	2	585	532	12	9	27	12	92	43	4	178	04	9	×	0	×	×	8	25	51	03	27	045
06	22	7	2	585	533	15	9	27	15	93	43	4	170	03	9	×	0	×	×	6	08	52	03	27	042
06	22	7	2	585	533	18	9	27	15	93	44	4	166	04	9	×	0	×	×	7	04	50	04	27	042
06	22	7	2	582	527	21		27	15	96	00	4	163	04						7	03	51	04	27	050
06	23	1	2	579	522	00		27	16	96	00	2	164	05						3	01	52	04	27	059
06	23	1	2	576	516	03		27	10	96	00	2	165	06						2	01	50	04	27	057
06	23	1	2	573	518	06	8	27	14	97	02	4	160	05						8	05	52	03	27	055
06	23	1	2	570	504	09		27	09	97	00	2	157	05						8	03	50	03	27	047
06	23	1	2	560	501	12		27	10	96	00	2	155	04						8	02	51	04	27	048
06	23	1	2	568	501	15		27	05	96	00	2	153							8	02		03	27	049
06	23	1	2	562	490	18	8	36	06	97	02	2	152	04	0	0	9	2	×	4	00	50	04	36	042
06	23	1	2	559	485	21	5	00	00	97	01	1	155	06	0	0	9	1	1	3	03	51	04	00	058
06	24	2	2	556	479	00	5	27	06	97	01	0	155	08						4	00	02	05	27	067

Table 19. (Continued)

Date		Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_fT_fT_f$
06	24	2	2	550	472	03		00	00	98	01	0	160	08						3	05	02	05	00	072
06	24	2	2	558	470	06	0	07	04	99	02	0	160	09	0	0	9	0	0	4	00	03	04	07	072
06	24	2	2	544	470	09	0	18	02	99	02	0	160	07	0	0	9	0	0	4	00	00	06	18	068
06	24	2	2	540	471	12	0	22	02	94	02	1	164	06	0	0	9	0	0	3	04	51	06	22	068
06	24	2	2	537	470	15	0	13	02	91	46	1	167	04	0	0	9	0	0	3	03	55	04	13	061
06	24	2	2	533	470	18	9	13	02	91	47	4	170	04	9	×	0	×	×	3	03	54	04	13	056
06	24	2	2	528	470	21	9	09	02	91	47	4	176	04	9	×	0	×	×	3	06	54	03	09	054
06	25	3	2	525	470	00	9	18	03	90	47	4	178	04	9	×	0	×	×	3	02	53	04	18	056
06	25	3	2	520	470	03	9	18	03	93	43	4	173	05	9	×	0	×	×	8	05	53	05	18	066
06	25	3	2	515	470	06		07	04	92	44	4	178	04						3	05	54	04	07	061
06	25	3	2	512	470	09		00	00	91	44	4	173	05						7	05	54	05	00	065
06	25	3	2	508	470	12	9	22	05	90	45	4	173	05	9	×	0	×	×	4	00	52	05	22	060
06	25	3	2	503	470	15	9	13	05	90	45	4	170	05	9	×	0	×	×	8	03	53	05	13	058
06	25	3	2	500	470	18	8	27	03	97	02	2	169	05						7	01	52	03	27	053
06	25	3	2	497	470	21	7	20	03	99	02	2	164	05						7	05	51	05	22	052
06	26	4	2	493	470	00	7	22	05	97	02	6	163	05						7	01	00	05	22	048
06	26	4	2	478	473	03		22	05	96	02	2	160	06						7	03	50	05	22	061
06	26	4	2	484	472	06	5	27	05	99	01	2	155	07						7	05	01	06	27	067
06	26	4	2	479	469	12		27	05	96	01	2	152	07						7	03	01	06	27	063
06	26	4	2	477	463	15		27	02	97	02	1	150	07						7	02	01	06	27	065
06	26	4	2	474	458	18		22	03	97	02	1	145	08						7	05	02	07	22	067
06	26	4	2	471	453	21	1	22	03	96	02	1	145	07						4	00	01	07	22	067
06	26	4	2	470	449	00	1	22	04	97	02	1	150	09						3	05	03	08	22	070
06	27	5	2	465	446	03		22	04	97	02	1	144	10						8	06	03	09	22	084
06	27	5	2	462	443	06		18	05	99	02	1	142	10						7	02	01	08	18	097
06	27	5	2	458	438	09	1	22	03	99	02	1	140	10						7	02	00	10	22	099
06	27	5	2	450	432	12		22	03	96	02	1	138	10						7	02	01	10	22	105
06	27	5	2	457	425	15		22	05	97	02	1	130	10						7	08	02	09	22	087
06	27	5	2	456	415	21		18	03	96	02	1	125	13						7	05	54	12	18	147

Table 19. (Continued)

Date	Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$
07 11	5	2	459	448	09		13	05	99	02	1	150	13						4	00	01	10	13	120
07 11	5	2	461	445	12		13	05	96	02	1	158	11						2	08	01	09	13	105
07 11	5	2	462	461	15		20	05	96	02	1	155	11						7	03	01	10	20	101
07 11	5	2	453	466	18	4	20	07	97	03	2	155	10						7	05	51	09	23	105
07 11	5	2	464	473	21	4	22	08	99	03	2	155	11						3	05	01	10	23	104
07 12	6	2	465	489	00	3	22	08	99	02	1	160	11						2	05	05	09	23	078
07 12	6	2	465	481	03		22	08	92	02	1	160	11						4	00	02	09	22	068
07 12	6	2	470	485	06	7	22	07	98	03	2	155	10						8	05	01	08	22	086
07 12	6	2	474	488	09	7	22	06	97	01	2	152	09						7	03	51	08	22	087
07 12	6	2	475	501	12		20	07	96	02	1	150	09						7	02	50	09	20	090
07 12	6	2	478	502	15		16	07	96	02	1	160	09						3	10	01	08	07	086
07 12	6	2	481	506	18	2	20	07	98	02	1	159	08						8	01	07	07	20	076
07 12	6	2	485	511	21	2	18	05	98	02	0	168	11						3	09	06	08	18	074
07 13	7	2	489	515	00		22	05	97	02	0	172	10						2	04	01	08	22	076
07 13	7	2	490	518	03		22	07	97	02	0	180	09						2	08	03	08	22	076
07 13	7	2	495	522	06	8	18	08	97	03	2	180	10						4	00	03	08	18	081
07 13	7	2	499	528	09	1	18	08	98	01	1	180	09						4	00	01	09	18	078
07 13	7	2	500	529	12		22	05	95	02	0	187	08						3	07	01	06	22	076
07 13	7	2	501	530	15		22	05	96	02	1	195	08						3	08	02	08	22	075
07 13	7	2	508	534	18	2	22	05	98	02	1	197	03						0	07	60	01	22	077
07 13	7	2	512	536	21	1	18	05	99	00	0	195	12						7	02	07	09	18	078
07 14	1	2	517	524	03		20	07	98	00	0	191	12						7	04	06	08	20	089
07 14	1	2	520	535	06	0	18	07	98	02	0	185	11						7	06	03	09	18	088
07 14	1	2	523	527	09	9	22	11	90	47	1	175	09	9	×	0	×	×	8	10	00	08	22	090
07 14	1	2	524	519	12		22	11	92	02	2	175	08						7	10	53	08	22	093
07 14	1	2	525	515	15		22	11	91	02	2	168	08						7	07	53	08	22	093
07 14	1	2	529	515	18	6	18	07	92	28	4	160	03						7	08	62	03	18	089
07 14	1	2	534	515	21	9	18	15	91	43	4	163	09	9	×	0	×	×	5	03	00	09	18	090
07 15	2	2	538	513	00		22	09	95	02	4	152	09						7	11	00	09	22	090

Table 19. (Continued)

Date	Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$
07 15	2	2	541	520	03		22	13	91	02	4	160	09						3	08	00	09	22	090
07 15	2	2	544	527	06	6	13	12	93	46	2	165	08						2	05	52	07	13	090
07 15	2	2	546	532	09		22	12	93	44	4	168	08						2	03	52	08	22	089
07 15	2	2	549	538	12		13	12	92	02	2	170	08						2	02	51	07	13	083
07 15	2	2	552	545	15		13	12	91	02	2	175	08						2	05	51	07	13	082
07 15	2	2	556	548	18	8	20	10	96	02	2	174	08						2	01	51	07	20	081
07 15	2	2	559	552	21	8	22	10	95	02	2	175	08						2	01	00	07	22	080
07 16	3	2	562	547	00		20	10	94	02	2	173	08						8	02	50	07	20	077
07 16	3	2	567	547	03		20	07	92	04	4	175	09						5	02	03	08	20	075
07 16	3	2	578	546	06		19	07	94	43	4	174	07	9	×	0	×	×	8	01	01	07	19	072
07 16	3	2	571	550	09		22	07	93	44	4	185	06						3	11	02	05	22	049
07 16	3	2	571	549	15		18	05	92	44	4	188	06						2	03	52	06	18	070
07 16	3	2	572	558	18		18	03	92	44	4	192	06						2	04	52	04	18	065
07 16	3	2	576	548	21	8	18	01	92	44	4	198	06						2	06	54	04	18	082
07 17	4	2	580	546	00	9	20	02	90	47	4	195	07	9	×	0	×	×	8	03	01	07	20	063
07 17	4	2	586	543	03		25	03	92	44	4	200	06						3	05	05	04	25	029
07 17	4	2	587	542	06		25	03	91	44	4	200	06						4	00	01	04	25	040
07 17	4	2	585	533	09	4	22	04	93	44	4	200	07						4	00	01	06	22	061
07 17	4	2	586	527	15		00	00	91	44	4	190	08						8	10	02	07	00	084
07 18	5	2	586	517	00	2	34	02	96	44	4	190	09						4	00	51	08	34	090
07 18	5	2	586	510	03		20	03	93	44	4	185	10						8	05	52	09	20	112
07 18	5	2	584	505	06		00	00	93	01	2	180	11						8	05	01	10	00	105
07 18	5	2	584	508	09	9	11	02	91	47	4	170	11	9	×	0	×	×	8	10	01	09	11	103
07 18	5	2	585	508	12	9	00	00	91	45	4	170	10	9	×	0	×	×	4	00	51	09	00	104
07 18	5	2	585	508	15	7	06	04	×	02	2	162	10						8	08	53	09	05	114
07 19	6	2	586	495	00		09	11	93	05	4	150	10						7	06	52	10	09	112
07 19	6	2	586	485	03		09	13	93	02	2	145	11						7	05	50	10	09	107
07 19	6	2	587	478	06	8	09	09	96	11	2	140	10						7	05	52	09	09	109
07 19	6	2	588	470	09		09	07	93	50	2	140	10						4	00	52	10	09	111

Table 19. (Continued)

Date		Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$
07	19	6	2	589	461	12		07	07	91	50	5	139	10						7	01	52	09	11	108
07	19	6	2	587	456	15		07	07	91	02	5	123	10						8	16	01	11	07	111
07	19	6	2	584	449	18	8	07	07	96	02	2	110	11						7	13	52	11	07	116
07	19	6	2	581	442	21	8	05	06	97	61	2	107	12						6	03	53	12	05	130
07	20	7	2	582	489	00		36	07	92	55	5	110	12						3	03	52	12	36	124
07	20	7	2	586	436	03		34	04	92	61	5	100	12						8	10	51	12	34	123
07	20	7	2	587	432	06	8	11	05	96	55	5	113	11						3	13	52	10	11	117
07	20	7	2	590	432	09	8	09	06	96	61	5	131	11						3	18	52	11	36	117
07	20	7	2	590	432	15	9	11	06	91	45	4	152	11	9	×	0	×	×	1	11	52	10	11	118
07	20	7	2	589	438	21	8	09	08	94	61	5	189	11								00	10	09	110
07	21	1	2	588	446	00	7	09	08	95	02	5	210	11						2	21	52	10	09	113
07	21	1	2	588	455	03	8	09	08	96	21	2	213	11						1	03	51	11	09	111
07	21	1	2	584	456	06		07	07	91	44	5	212	11						8	01	52	10	07	114
07	21	1	2	587	462	09	8	09	05	96	02	4	210	11						7	02	51	10	09	115
07	21	1	2	547	463	15		07	02	97	02	2	215	11						3	01	51	10	00	114
07	22	2	2	580	463	03	6	07	05	99	00	2	210	14						4	00	02	11	07	120
07	22	2	2	587	464	09	8	07	05	99	02	1	198	13						5	02	00	12	07	123
07	22	2	2	587	469	12		07	05	99	02	2	192	13						7	06	01	11	05	122
07	23	3	2	575	469	00		13	11	94	50	5	175	10						8	03	53	10	13	118
07	23	3	2	581	469	03	8	11	20	95	37	3	165	11						8	10	51	10	11	118
07	23	3	2	581	469	06	8	13	17	98	01	2	170	12						1	05	51	12	13	118
07	23	3	2	581	469	09		11	15	96	02	5	180	12						2	10	51	11	13	116
07	23	3	2	598	469	12		13	15	96	02	2	178	11						8	02	51	10	13	114
07	23	3	2	575	469	15	6	13	15	96	02	2	165	11						8	13	00	09	13	110
07	23	3	2	572	469	18	8	11	20	97	02	2	155	10						7	10	51	09	13	110
07	23	3	2	570	469	21	8	11	20	96	02	2	153	10						6	02	00	09	11	105
07	24	4	2	567	469	00	8	13	18	96	02	2	160	10						3	07	52	07	13	108
07	24	4	2	563	469	03	8	16	15	96	02	2	162	10						2	02		09	16	105
07	24	4	2	556	465	06	8	16	09	92	46	2	170	06						2	08	55	07	14	052

Table 19. (Continued)

Date		Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	dwdw	$T_rT_rT_r$
07	24	4	2	551	465	09	9	18	08	91	45	4	180	11	9	×	0	×	×	2	10	52	10	18	099
07	24	4	2	553	465	15		16	07	96	01	2	193	11						8	02	00	10	16	110
07	24	4	2	543	465	21	8	13	07	98	01	2	195	11						3	03	54	10	13	128
07	25	5	2	541	462	00	8	11	14	94	02	2	175	11						8	20	53	10	13	126
07	25	5	2	541	463	03	7	09	14	94	02	2	160	13						7	05	52	11	09	134
07	25	5	2	536	462	06	8	16	14	96	02	2	150	12						7	10	53	11	16	135
07	25	5	2	532	462	09	8	11	14	96	02	2	140	11						7	10	55	10	14	134
07	25	5	2	530	462	12	7	11	12	94	02	2	139	11						6	01	51	11	11	122
07	25	5	2	526	462	15		13	10	94	02	2	127	11						8	12	51	11	13	118
07	25	5	2	519	463	18	8	16	12	95	02	2	130	10						3	03	53	10	16	116
07	25	5	2	514	463	21	9	16	10	90	47	2	140	10	9	×	0	×	×	2	10	53	09	13	115
07	26	6	2	511	457	03	6	13	06	94	60	2	135	10						8	05	53	10	13	113
07	26	6	2	506	458	06	6	13	04	98	02	2	130	11						7	05	01	10	13	101
07	26	6	2	500	459	09	7	00	08	98	02	2	125	10						7	05	02	09	00	087
07	26	6	2	498	469	12		16	03	92	44	2	123	08						6	02	01	08	16	075
07	26	6	2	493	469	15	5	00	00	92	02	4	120	09						7	03	02	09	00	083
07	26	6	2	489	459	18	2	00	00	97	01	2	110	10						8	10	51	09	00	098
07	26	6	2	485	459	21	9	00	00	90	47	4	108	10	9	×	0	×	×	7	02	50	10	00	102
07	27	7	2	478	455	03		05	03	91	43	4	105	15	9	×	0	×	×	7	07	05	12	05	118
07	27	7	2	474	452	06	8	05	03	98	03	1	100	14						7	05	51	12	05	138
07	27	7	2	470	450	09	9	07	03	90	47	2	090	13	9	×	0	×	×	7	10	52	12	07	140
07	27	7	2	466	447	12	9	07	03	91	47	4	097	12	9	×	0	×	×	3	07	53	12	07	136
07	27	7	2	462	444	15	9	05	03	91	47	4	083	11	9	×	0	×	×	8	06	54	11	05	132
07	27	7	2	459	441	18	9	05	05	×	45	4	078	13	9	×	0	×	×	7	05	52	12	05	141
07	27	7	2	455	431	21	9	07	06	92	45	4	067	14	9	×	0	×	×	7	05	50	14	05	142
07	28	1	2	455	427	00		09	08	92	20	4	062	15						7	05	01	14	09	147
07	28	1	2	456	421	03	8	13	08	93	20	4	050	15						7	08	53	14	13	158
07	28	1	2	455	416	06	8	09	12	98	51	2	040	16						7	10	53	14	09	177
07	28	1	2	451	415	09	9	22	03	92	43	2	045	19	9	×	0	×	×	3	05	01	19	22	185

Table 19. (Continued)

Date		Y	Q	$L_AL_AL_A$	$L_LL_LL_L$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_iT_iT_i$
07	28	1	2	446	415	12		25	06	94	01	2	054	19						2	09		19	25	189
07	28	1	2	442	414	15	6	20	08	94	00	2	058	20						2	04	01	18	20	191
07	28	1	2	438	415	18		18	05	98	00	0	050	19						8	08	12	18	18	131
08	7	4	2	459	439	06	8	04	07	97	02	2	050	14						7	05	51	13	05	146
08	7	4	2	455	445	12	6	02	07	94	02	2	058	14						0	03	52	14	02	150
08	7	4	2	467	449	15		04	06	91	46	2	055	13						7	03	52	13	05	140
08	7	4	2	472.	452	18	8	02	06	95	40	4	050	13						7	05	53	12	02	145
08	7	4	2	476	456	21	9	02	08	90	47	4	060	13	9	×	0	×	×	3	10	51	12	02	135
08	8	5	2	479	459	00		01	09	93	42	4	060	13						4	00	52	12	04	136
08	8	5	2	483	461	03		01	09	94	42	4	062	13						3	02	51	13	04	136
08	8	5	2	489	464	06	6	01	08	98	02	2	065	12						2	03		11	01	125
08	8	5	2	494	464	09	9	01	08	91	47	4	055	13	9	×	0	×	×	8	10	50	12	02	127
08	8	5	2	496	464	12	9	36	08	93	43	4	090	12	9	×	0	×	×	3	35	00	10	36	115
08	8	5	2	500	464	15	9	36	08	91	45	4	100	11	9	×	0	×	×	2	10	51	11	36	114
08	8	5	2	504	464	18	8	01	08	96	02	4	105	13						2	05	51	13	01	131
08	8	5	2	504	463	21	8	01	08	95	02	2	125	12						3	20	53	10	01	133
08	9	6	2	513	464	00	6	05	07	95	02	2	132	12						1	07	52	10	05	131
08	9	6	2	518	464	03	6	05	05	94	02	2	140	12						2	08	52	10	05	132
08	9	6	2	522	465	06	8	02	06	98	02	2	154	11						2	14	55	11	02	136
08	9	6	2	526	465	09	8	05	05	93	41	2	157	11						2	03	55	11	05	135
08	9	6	2	530	465	12	6	05	05	93	41	4	165	12						2	08	53	11	05	136
08	9	6	2	533	465	15	6	05	05	93	41	2	170	13						2	05	52	12	05	137
08	9	6	2	538	465	18	8	07	06	98	02	2	167	11						8	03	55	10	07	135
08	9	6	2	542	465	21		09	08	99	01	2	170	12						3	03	53	10	07	135
08	10	7	2	562	471	09		08	11	97	02	2	177	11						1	07	53	07	08	123
08	10	7	2	565	472	12	7	06	09	93	61	2	185	11						2	08	53	07	08	125
08	10	7	2	570	474	15	6	07	07	94	61	6	198	09						2	13	58	09	07	131
08	10	7	2	574	475	18	8	07	03	95	61	6	205	09						2	07	58	08	07	129
08	10	7	2	578	480	21	6	31	03	98	02	2	200	11						8	05	54	07	31	131

Table 19. (Continued)

Date	Y	Q	$L_1L_aL_A$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$
08 10 7	2	582	481	00	7	31	09	98	02	2	200	13							4	00	52	10	31	133
08 11 1	2	585	482	03	6	11	15	97	02	2	210	12							3	10	53	08	11	131
08 11 1	2	588	483	06	5	11	06	98	01	1	215	12							2	05	00	07	11	120
08 11 1	2	589	483	09	3	22	03	99	00	2	202	11							8	13	54	06	22	131
08 11 1	2	588	483	12	3	13	06	98	00	0	198	11							7	04	53	08	13	122
08 11 1	2	588	480	18	0	27	10	99	02	0	170	12									50	09	27	121
08 11 1	2	588	482	21	1	27	10	99	02	0	163	14							7	07	03	09	27	124
08 12 2	2	587	489	00	1	11	03	98	02	0	153	12							7	10	52	08	09	130
08 12 2	2	586	499	03	1	36	05	99	00	0	144	15							7	09		10	36	132
08 12 2	2	585	508	06		31	06	98	00	0	130	18							7	14	16	13	31	093
08 12 2	2	585	508	09	1	27	10	99	00	0	121	12							7	09	04		27	098
08 12 2	2	584	509	21	2	32	03	98	01	0	121	11							2	01	02	09	32	099
08 14 4	2	584	509	18		26	05	92	01	0	152	10							2	02	56	10	26	133
08 15 5	2	584	514	12	9	25	03	97	45	4	150	11	9	×	0	×	×		4	00	51	10	25	106
08 15 5	2	584	514	15		25	02	97	00	0	150	11							4	00	00	11	25	105
08 15 5	2	565	512	18	6	25	03	97	02	1	152	10							2	02		10	25	111
08 16 6	2	579	506	00	7	25	05	98	61	2	142	13							8	06	04	12	25	105
08 16 6	2	568	483	09	7	31	06	97	02	2	110	13							8	02	51	12	31	132
08 16 6	2	564	492	12		26	07	97	02	2	128	12							3	18		11	26	128
08 16 6	2	555	489	15	8	31	06	96	02	2	148	11							2	20	52	09	31	119
08 16 6	2	552	488	21	8	20	06	96	20	4	150	12							4	00	51	12	20	118
08 17 7	2	548	487	00	8	16	08	96	02	2	148	12							8	02	00	11	16	115
08 17 7	2	543	485	03	8	14	08	95	03	5	140	12							7	08	00	12	14	117
08 17 7	2	539	484	06	8	17	11	96	41	2	135	12							7	05	00	12	17	120
08 17 7	2	535	482	09	8	17	13	95	02	2	130	13							7	05	50	12	17	126
08 17 7	2	531	482	12	8	16	16	93	61	2	126	13							7	04	00	11	16	130
08 17 7	2	528	481	15	8	16	16	93	61	5	115	12							7	11	51	12	16	126
08 17 7	2	524	479	18	8	18	18	95	02	2	112	13							7	03	00	13	18	130
08 17 7	2	520	478	21	8	17	13	95	03	2	110	13							6	02	51	13	18	135

Table 19. (Continued)

Date		Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H	a	PP	T_sT_s	T_dT_d	d_wd_w	$T_tT_tT_t$
08	18	1	2	517	477	00	8	17	16	95	03	2	110	13						4	00	50	13	17	132
08	18	1	2	514	476	03	8	20	13	95	02	2	102	13						8	08	00	13	20	130
08	18	1	2	509	475	06	8	19	13	97	28	2	095	14						7	07	00	13	19	133
08	18	1	2	505	473	09	8	20	13	95	02	2	095	15						5	00	02	14	18	137
08	18	1	2	500	472	12	8	20	12	95	00	2	108	13						2	13	51	12	20	137
08	18	1	2	498	472	15	7	20	12	95	00	2	120	13						2	12	01	12	20	128
08	18	1	2	496	464	18		22	10	96	01	2	132	12						2	12	01	12	22	117
08	18	1	2	493	462	21		20	06	97	02	2	146	12						8	14		11	18	115
08	19	2	2	491	461	00		20	05	97	02	1	142	13						7	04	02		20	122
08	19	2	2	487	479	03		20	04	97	02	2	136	14						7	06	03	13	20	119
08	19	2	2	483	496	06	8	18	07	97	00	2	128	13						7	08	02	13	18	119
08	19	2	2	484	457	09	8	22	08	96	61	2	125	15						7	03	00	15	22	150
08	19	2	2	474	452	12		20	06	93	61	5	115	16						7	10	00	16	20	154
08	19	2	2	470	450	15		20	10	96	03	5	100	16						8	15	01	16	20	150
08	19	2	2	465	447	18	8	22	10	96	02	2	095	17						6	05	02	15	22	158
08	19	2	2	461	440	21	8	22	10	96	02	2	100	17						3	05	02	16	22	153
08	20	3	2	456	425	06	6	31	07	96	02	2	140	17						2	17	07	16	31	130
08	20	3	2	452	415	12	6	07	06	96	01	2	149	18						0	03	55	16	07	205
08	20	3	2	448	414	15		09	05	96	01	2	138	18						7	11	53	16	09	195

8. Data on Temperature and Salinity, and Computed Data on Dynamic Depth

(温度塩分記録及びダイナミックデプス計算値)

Double titration for chlorinity determination, calculation of depths, interpolation of data, and computation of dynamic depth were made by Y. Akiba.

Code of the world Meteorological Organization

dd: Wind direction

ff: Wind speed

ww: Present weather

TTT: Air temperature

Abbreviations

Tr: Transparency of water in meters as represented by Secchi's disc reading

C: Colour of Sea

X: No observation

Table 20. Data on temperature, salinity and dynamic depth on 1957 cruise to the Okhotsk Sea

Station 1

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1130–1230	17	6	1957	49°57′ N	144°46′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
17	08	03	041	SSE 3	×	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		2.4	18.00	32.52
10	7	1.91	18.00	32.52
20	〃	1.59	18.00	32.52
30	〃	1.59	18.00	32.52
50	〃	−1.69	18.26	32.99
70	22	−1.75	18.29	33.04
93	〃	−1.77	18.35	33.15
139	〃	−1.57	18.39	33.22
185	〃	−1.23	18.58	33.57

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	2.4	18.00	32.52
10	1.91	18.00	32.52
20	1.59	18.00	32.52
30	1.59	18.00	32.52
50	−1.69	18.26	32.99
75	−1.75	18.30	33.00
100	−1.74	18.36	33.16
150	−1.49	18.44	33.30

Computed

σ_t	$10^3\triangle st$	$\triangle D$
25.98	204	0
26.01	201	0.020
26.03	199	0.040
26.03	199	0.060
26.56	149	0.095
26.62	143	0.132
26.71	135	0.166
26.82	124	0.231

Station 2

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1000–1100	18	6	1957	51°57′ N	144°45′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
14	03	02	050	S 2	S 1	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		5.1	17.59	31.78
10	5	3.83	17.59	31.78
20	〃	1.06	18.00	32.52
30	〃	0.12	18.04	32.59
50	〃	−1.01	18.29	33.04
75	8	−1.13	18.34	33.13
99	〃	−1.18	18.38	33.21
149	〃	−0.96	18.40	33.24
198	〃	−0.08	18.52	33.46
274	25	0.12	18.65	33.69
365	〃	0.36	18.54	33.49

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	5.1	17.59	31.78
10	3.83	17.59	31.78
20	1.06	18.00	32.52
30	0.12	18.04	32.59
50	−1.01	18.29	33.04
75	−1.13	18.34	33.13
100	−1.18	18.38	33.21
150	−0.95	18.40	33.24
200	−0.08	18.52	33.46
300	0.18	18.62	33.63

Computed

σ_t	$10^3\triangle st$	$\triangle D$
25.14	284	0
25.27	271	0.028
26.07	195	0.051
26.23	180	0.070
26.60	145	0.103
26.68	137	0.138
26.74	132	0.172
26.75	131	0.237
26.89	117	0.299
27.02	105	0.410

Table 20. (Continued)

Station 3

Time (G.M.T.)	Day	Month	Year	Latitude	Longitued
0640–0730	19	6	1957	55°00′ N	144°49′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
18	08	02	062	××	SE 5	×	5

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		4.6	18.24	32.95
10	0	2.88	18.24	32.95
20	〃	1.86	18.24	32.95
30	〃	2.04	18.24	32.95
50	〃	0.47	18.25	32.97
75	8	−0.50	18.25	32.97
99	〃	−0.66	18.34	33.13
149	〃	−0.54	18.36	33.17

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	4.6	18.24	32.95
10	2.88	18.24	32.95
20	1.86	18.24	32.95
30	2.04	18.24	32.95
50	0.47	18.25	32.97
75	−0.50	18.25	32.97
100	−0.66	18.34	33.13
150	−0.54	18.36	33.17

Computed

σ_t	$10^5\triangle st$	$\triangle D$
26.12	191	0
26.29	174	0.018
26.36	168	0.035
26.34	170	0.052
26.47	157	0.085
26.51	154	0.124
26.65	140	0.161
26.71	135	0.229

Station 4

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1010–1100	20	6	1957	58°53′ N	147°48′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
09	07	02	050	E 3	SE 4	×	15

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		5.2	17.90	32.34
10	2	4.84	17.90	32.34
20	〃	−1.18	18.25	32.97
30	〃	−1.68	18.27	33.01
50	〃	−1.58	18.42	33.28
75	〃	−1.58	18.42	33.28
100	〃	−1.78	18.52	33.46

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	5.2	17.90	32.34
10	4.84	17.90	32.34
20	−1.18	18.25	32.97
30	−1.68	18.27	33.01
50	−1.58	18.42	33.28
75	−1.78	18.42	33.28
100	−1.67	18.52	33.46

Computed

σ_t	$10^5\triangle st$	$\triangle D$
25.57	243	0
25.60	240	0.024
26.54	151	0.044
26.58	147	0.059
26.80	126	0.086
26.83	123	0.117
26.95	112	0.147

Table 20. (Continued)

Station 5

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1840–1900	20	6	1957	58°53′ N	147°48′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
11	06	43	048	ESE 2	SE 3	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		5.2		
10	0	4.80		
25	〃	−1.53		
50	〃	−1.74		
100	〃	−1.75		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	5.2		
10	4.80		
20	−1.53		
30	−1.74		
50	−1.75		

Computed

σ_t	$10^5\triangle st$	$\triangle D$

Station 6

Time (G.M.T.)	Day	Month	Year	Latitude	Longitued
1000–1100	21	6	1957	58°31′ N	150°52′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
27	05	02	042	NW 2	SE 2	×	16

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		5.8	17.91	32.36
10	2	5.36	17.91	32.36
20	〃	5.44	17.94	32.41
30	〃	−0.88	18.18	32.84
50	〃	−1.35	18.34	33.13
75	3	−1.50	18.24	32.95
100	〃	−1.62	18.20	32.88

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	5.8	17.91	32.36
10	5.36	17.91	32.36
20	5.44	17.94	32.41
30	−0.88	18.18	32.84
50	−1.35	18.34	33.13
75	−1.50	18.24	32.95
100	−1.62	18.20	32.88

Computed

σ_t	$10^5\triangle st$	$\triangle D$
25.51	249	0
25.57	243	0.025
25.60	240	0.049
26.42	161	0.069
26.68	137	0.090
26.52	153	0.125
26.48	156	0.163

Table 20. (Continued)

Station 7

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1015–1045	22	6	1957	58°31′ N	153°13′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
27	12	43	038	W 3	W 4	×	7

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		4.5	17.99	32.50
10	10	4.35	18.04	32.59
20	〃	3.78	18.07	32.68
30	〃	−0.81	18.19	32.86
49	〃	−0.56	18.20	32.88
73	14	−0.24	18.34	33.13
97	〃	−0.03	18.24	32.95

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	4.5	17.99	32.50
10	4.35	18.04	32.59
20	3.78	18.09	32.68
30	−0.81	18.19	32.86
50	−0.56	18.21	32.89
75	−0.23	18.33	33.11
100	−0.02	18.33	33.11

Computed

σ_t	$10^5\triangle st$	$\triangle D$
25.78	223	0
25.86	215	0.022
25.99	203	0.043
26.44	160	0.061
26.45	159	0.093
26.63	142	0.131
26.62	143	0.167

Station 8

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0900–0950	23	6	1957	56°50′ N	150°14′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
27	09	00	045	W 3	W 3	×	10

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		4.7	18.04	32.59
10	2	4.43	18.02	32.56
20	〃	4.16	18.05	32.61
30	〃	0.96	18.14	32.77
50	〃	−1.60	18.24	32.95
74	12	−1.77	18.28	33.03
98	〃	−1.66	18.28	33.03
147	〃	−1.55	18.29	33.04

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	4.7	18.04	32.59
10	4.43	18.02	32.56
20	4.16	18.05	32.61
30	0.96	18.14	32.77
50	−1.60	18.24	32.95
75	−1.77	18.28	33.03
100	−1.66	18.28	33.03
150	−1.55	18.29	33.04

Computed

σ_t	$10^5\triangle st$	$\triangle D$
25.82	219	0
25.80	221	0.022
25.90	211	0.044
26.29	174	0.063
26.53	152	0.096
26.60	145	0.133
26.59	146	0.169
26.60	145	0.242

Table 20. (Continued)

Station 9

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0330–0430	24	6	1957	55°00′ N	147°00′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
00	00	01	080	00	00	×	6

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		6.5	18.30	33.06
10	0	5.10	18.31	33.08
20	〃	1.93	18.32	33.10
30	〃	0.90	18.32	33.10
50	〃	0.20	18.34	33.13
75	〃	0.28	18.37	33.19
100	〃	0.29	18.37	33.19
150	〃	0.32	18.37	33.19
200	〃	0.39	18.41	33.26
300	〃	1.02	18.54	33.49
400	〃	1.35	18.59	33.58
500	〃	1.55	18.65	33.69

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	6.5	18.30	33.06	25.98	204	0
10	5.10	18.31	33.08	26.16	187	0.020
20	1.93	18.32	33.10	26.48	156	0.037
30	0.90	18.32	33.10	26.55	150	0.052
50	0.20	13.34	33.13	26.61	144	0.081
75	0.28	18.37	33.19	26.65	140	0.117
100	0.29	18.37	33.19	26.65	140	0.152
150	0.32	18.37	33.19	26.65	140	0.222
200	0.39	18.41	33.26	26.71	135	0.290
300	1.02	18.54	33.49	26.85	121	0.418
400	1.35	18.59	33.58	26.90	117	0.537
500	1.55	18.65	33.69	26.99	108	0.650

Station 10

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1315–1400	24	6	1957	53°49′ N	147°00′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
13	02	46	036	SE 2	SE 1	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		5.4	18.29	33.04
10	4	4.88	18.32	33.10
20	〃	4.37	18.34	33.13
30	〃	0.61	18.37	33.19
50	〃	0.00	18.37	33.19
75	〃	−0.89	18.39	33.22
100	〃	−1.16	18.40	33.24
150	〃	0.37	18.45	33.33
200	〃	0.77	18.50	33.42
299	〃	0.89	18.58	33.57
399	〃	1.12	18.62	33.64
499	〃	1.51	18.72	33.84

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	5.4	18.29	33.04	26.10	192	0
10	4.88	18.32	33.10	26.20	183	0.019
20	4.37	18.34	33.13	26.28	175	0.037
30	0.61	18.37	33.19	26.62	143	0.053
50	0.00	18.37	33.19	26.68	137	0.081
75	−0.89	18.39	33.22	26.72	134	0.115
100	−0.16	18.40	33.24	26.78	128	0.148
150	0.37	18.45	33.33	26.75	131	0.212
200	0.77	18.50	33.42	26.81	125	0.276
300	0.89	18.58	33.57	26.91	116	0.397
400	1.12	18.62	33.64	26.99	108	0.508
500	1.51	18.72	33.84	27.07	100	0.613

Table 20. (Continued)

Station 11

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2300–2400	24	6	1957	52°30′ N	147°00′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
18	03	47	040	××	NE 1	×	9

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		5.3	18.30	33.06
10	0	5.19	18.34	33.13
20	〃	4.59	18.34	33.13
30	〃	1.95	18.34	33.13
50	〃	0.40	18.35	33.15
75	〃	−0.19	18.37	33.19
100	〃	−0.16	18.45	33.33
150	〃	0.30	18.45	33.33
200	〃	1.08	18.54	33.49
295	10	0.98	18.59	33.58
394	〃	1.18	18.65	33.69
492	〃	1.42	18.54	33.49

Interpolated			Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	5.3	18.30	33.06	26.12	191	0
10	5.19	18.34	33.13	26.20	183	0.019
20	4.59	18.34	33.13	26.27	176	0.037
30	1.95	18.34	33.13	26.58	147	0.053
50	0.40	18.35	33.15	26.61	144	0.082
75	−0.19	18.37	33.19	26.68	137	0.117
100	−0.16	18.45	33.33	26.80	126	0.150
150	0.30	18.45	33.33	26.78	128	0.214
200	1.08	18.54	33.49	26.85	121	0.276
300	0.98	18.59	33.58	26.93	114	0.393
400	1.19	18.64	33.68	26.99	108	0.504
500	1.43	18.53	33.48	26.96	111	0.614

Station 12

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0745–0845	25	6	1957	51°14′ N	147°06′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
00	00	44	046	00	00	×	11

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		7.1	18.27	33.01
10	0	5.06	18.27	33.01
20	〃	4.63	18.29	33.04
30	〃	1.58	18.36	33.17
50	〃	−0.97	18.32	33.10
75	〃	−1.20	18.37	33.19
100	〃	−0.91	18.40	33.24
150	〃	0.68	18.50	33.42
200	〃	0.77	18.58	33.57
300	〃	0.80	18.60	33.60
400	〃	1.14	18.69	33.77
500	〃	1.52	18.79	33.95

Interpolated			Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	7.1	18.27	33.01	25.85	216	0
10	5.06	18.27	33.01	26.11	192	0.020
20	4.63	18.29	33.04	26.18	185	0.039
30	1.58	18.36	33.17	26.55	150	0.056
50	−0.97	18.32	33.10	26.62	143	0.086
75	−1.20	18.37	33.19	26.71	135	0.120
100	−0.91	18.40	33.24	26.75	131	0.154
150	0.68	18.50	33.42	26.81	125	0.208
200	0.77	18.58	33.57	26.92	115	0.268
300	0.80	18.60	33.60	26.95	112	0.381
400	1.14	18.69	33.77	27.06	101	0.488
500	1.52	18.79	33.95	27.18	90	0.584

Table 20. (Continued)

Station 13

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1725–1910	25	6	1957	50°00′ N	147°12′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
27	03	02	045	W 1	00	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		5.3	18.20	32.88
10	4	4.62	18.19	32.86
20	〃	4.25	18.17	32.83
30	〃	1.95	18.22	32.92
50	〃	−1.05	18.29	33.04
74	12	−1.54	18.35	33.15
98	〃	−1.43	18.35	33.15
147	〃	0.38	18.50	33.42
196	〃	0.90	18.55	33.51
278	12	0.89	18.60	33.60
371	〃	1.08	18.67	33.73
464	〃	1.54	18.74	33.86
556	〃	1.92	18.82	34.00
663	35	2.20	18.94	34.22
829	〃	2.30	18.96	34.25

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	5.3	18.20	32.88
10	4.62	18.19	32.86
20	4.25	18.17	32.83
30	1.95	18.22	32.92
50	−1.05	18.29	33.04
75	−1.54	18.35	33.15
100	1.36	18.36	33.16
150	0.41	18.50	33.42
200	0.90	18.55	33.51
300	0.93	18.62	33.63
400	1.22	18.69	33.76
500	1.68	18.76	33.90
600	2.03	18.85	34.05
800	2.28	18.96	34.25

Computed

σ_t	$10^5\triangle$st	$\triangle$D
25.99	203	0
26.04	198	0.020
26.05	197	0.040
26.32	172	0.058
26.60	145	0.091
26.70	135	0.126
26.70	135	0.160
26.82	124	0.225
26.88	118	0.286
26.97	110	0.400
27.05	102	0.506
27.12	96	0.598
27.24	84	0.758
27.38	71	0.918

Station 14

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0830–1000	26	6	1957	48°00′ N	147°00′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
27	05	01	070	W 1	00	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		6.3	17.75	32.07
10	0	5.68	17.77	32.10
20	〃	5.11	17.79	32.14
30	〃	0.45	17.94	32.41
50	〃	−0.81	18.09	32.68
75	〃	−0.78	18.14	32.77
100	〃	−0.76	18.29	33.04
150	〃	−0.64	18.34	33.13
200	〃	0.18	18.41	33.26
300	〃	0.60	18.48	33.39
400	〃	0.65	18.54	33.49
500	〃	0.87	18.59	33.58
594	8	1.37	18.73	33.84
792	〃	2.03	18.86	34.07

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	6.3	17.75	32.07
10	5.68	17.77	32.10
20	5.11	17.79	32.14
30	0.45	17.94	32.41
50	−0.81	18.09	32.68
75	−0.78	18.14	32.77
100	−0.76	18.29	33.04
150	−0.64	18.34	33.13
200	0.18	18.41	33.26
300	0.60	18.48	33.39
400	0.65	18.54	33.49
500	0.87	18.59	33.58
600	1.38	18.73	33.84

Computed

σ_t	$10^5\triangle$st	$\triangle$D
25.22	276	0
25.32	267	0.027
25.42	257	0.043
26.02	200	0.066
26.30	173	0.104
26.36	168	0.146
26.58	147	0.186
26.68	137	0.257
26.71	135	0.325
26.80	126	0.456
26.88	118	0.578
26.93	114	0.694
27.10	98	0.801

Table 20. (Continued)

Station 15

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0040-0225	12	7	1957	46°30′ N	148°00′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
22	08	02	105	SW 3	SW 2	6	8

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		7.6	17.93	32.39
10	0	6.91	17.94	32.41
20	〃	6.05	17.89	32.32
30	〃	7.00	17.89	32.32
50	〃	5.91	18.04	32.59
74	10	0.04	18.23	32.94
98	〃	−0.37	18.29	33.04
148	〃	0.34	18.40	33.24
180	26	0.42	18.44	33.31
270	〃	0.56	18.49	33.40
360	〃	0.35	18.54	33.49
433	〃	0.27	18.54	33.49
520	31	0.37	18.56	33.53
693	〃	0.76	18.60	33.60
866	〃	0.87	18.55	33.51

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\Delta_{st}$	ΔD
0	7.6	17.93	32.39	25.32	267	0
10	6.91	17.94	32.41	25.41	258	0.026
20	6.05	17.89	32.32	25.47	252	0.052
30	7.00	17.89	32.32	25.47	252	0.077
50	5.91	18.04	32.59	25.69	231	0.125
75	0.03	18.23	32.94	26.46	158	0.174
100	−0.35	18.29	33.04	26.57	148	0.213
150	0.34	18.40	33.24	26.70	135	0.284
200	0.45	18.45	33.32	26.75	131	0.350
300	0.50	18.50	33.42	26.82	124	0.477
400	0.31	18.54	33.49	26.90	117	0.597
500	0.27	18.55	33.52	26.92	115	0.713
600	0.38	18.57	33.56	26.93	114	0.828
800	0.83	18.59	33.55	26.92	114	1.058

Station 16

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1215-1320	12	7	1957	47°38′ N	150°05′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
20	07	02	085	SSW 2	SW 1	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		9.2	17.89	32.32
10	0	8.60	17.85	32.25
20	〃	3.04	18.04	32.59
30	〃	0.70	18.09	32.68
50	〃	−0.50	18.14	32.77
75	〃	−0.21	18.29	33.04
100	〃	−0.60	18.29	33.04
149	7	−0.25	18.34	33.13
199	〃	0.42	18.38	33.21
298	〃	0.27	18.50	33.42
398	〃	0.86	18.54	33.49
464	22	1.15	18.64	33.68
556	〃	1.46	18.69	33.77
742	〃	1.96	18.80	33.96
927	〃	2.23	18.81	34.13

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\Delta_{st}$	ΔD
0	9.2	17.89	32.32	25.01	297	0
10	8.60	17.85	32.25	25.05	292	0.030
20	3.04	18.04	32.59	25.99	209	0.055
30	0.70	18.09	32.68	26.22	182	0.074
50	−0.50	18.14	32.77	26.35	169	0.109
75	−0.21	18.29	33.04	26.56	149	0.149
100	−0.60	18.29	33.04	26.59	146	0.186
150	0.24	18.34	33.13	26.61	144	0.259
200	0.42	18.38	33.21	26.67	138	0.329
300	0.28	18.50	33.42	26.83	123	0.461
400	0.86	18.54	33.49	26.86	120	0.582
500	1.29	18.65	33.69	27.00	107	0.696
600	1.57	18.71	33.80	27.05	102	0.802
800	2.04	18.82	34.00	27.20	88	0.999

Table 20. (Continued)

Station 17

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0010–0110	13	7	1957	48°53′ N	151°32′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
22	05	02	100	SW 2	SW 2	5	10

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		7.6	18.03	32.57
10	0	6.85	18.04	32.59
20	〃	3.33	18.11	32.72
30	〃	1.84	18.28	33.03
50	〃	0.54	18.29	33.04
75	〃	0.74	18.41	33.26
100	〃	1.13	18.45	33.33
137	24	1.36	18.46	33.35
183	〃	1.28	18.50	33.42
274	〃	1.51	18.59	33.58
365	〃	1.44	18.59	33.68
464	22	0.94	18.64	33.68
556	〃	1.74	18.74	33.86
742	〃	2.24	18.79	33.95
927	〃	2.20	18.99	34.31

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle$st	△D
0	7.6	18.03	32.57	25.45	254	0
10	6.85	18.04	32.59	25.56	244	0.025
20	3.33	18.11	32.72	26.05	197	0.047
30	1.84	18.28	33.03	26.42	162	0.065
50	0.54	18.29	33.04	26.52	153	0.096
75	0.74	18.41	33.26	26.69	136	0.132
100	1.13	18.45	33.33	26.72	134	0.166
150	1.34	18.47	33.36	26.73	133	0.233
200	1.32	18.51	33.43	26.80	126	0.298
300	1.50	18.59	33.58	26.90	117	0.420
400	1.26	18.60	33.60	26.92	115	0.537
500	1.25	18.67	33.73	27.01	106	0.649
600	1.85	18.75	33.87	27.10	98	0.757
800	2.23	18.85	34.06	27.21	87	0.947

Station 18

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1030–1200	13	7	1957	50°05′ N	152°56′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
22	05	02	080	SW 2	××	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		7.4	18.24	32.95
10	0	7.19	18.25	32.97
20	〃	5.43	18.24	32.95
30	〃	4.17	18.24	32.95
50	〃	1.53	18.34	33.13
75	〃	0.70	18.37	33.19
100	〃	0.39	18.39	33.22
143	18	0.23	18.44	33.31
190	〃	0.67	18.45	33.33
285	〃	0.87	18.51	33.44
380	〃	0.90	18.60	33.60
457	24	1.04	18.64	33.68
548	〃	1.63	18.77	33.91
731	〃	2.24	18.92	34.18
914	〃	2.38	19.00	34.33

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle$st	△D
0	7.4	18.24	32.95	25.78	223	0
10	7.19	18.25	32.97	25.81	221	0.022
20	5.43	18.24	32.95	26.02	200	0.043
30	4.17	18.24	32.95	26.16	187	0.063
50	1.53	18.34	33.13	26.54	151	0.097
75	0.70	18.37	33.19	26.62	144	0.134
100	0.39	18.39	33.22	26.68	137	0.169
150	0.29	18.44	33.31	26.75	131	0.236
200	0.69	18.45	33.33	26.75	131	0.301
300	0.87	18.52	33.46	26.82	125	0.429
400	0.93	18.61	33.62	26.96	111	0.548
500	1.31	18.70	33.78	27.06	101	0.655
600	1.80	18.81	33.98	27.20	88	0.751
800	2.29	18.95	34.23	27.35	74	0.919

Table 20. (Continued)

Station 19

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0615–0655	14	7	1957	52°00′ N	153°02′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
18	07	02	105	S 3	SW 2	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		9.1	18.25	32.97
10	0	8.96	18.25	32.97
20	〃	6.56	18.27	33.01
30	〃	4.18	18.31	33.08
50	〃	1.00	18.31	33.08
75	5	0.70	18.36	33.17
100	〃	0.71	18.40	33.24
150	〃	0.75	18.40	33.24
200	〃	0.95	18.45	33.33
299	〃	1.39	18.54	33.49
399	〃	1.10	18.59	33.58
499	〃	1.28	18.64	33.68
599	〃	1.81	18.74	33.86

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle$st	△D
0	9.1	18.25	32.97	25.53	247	0
10	8.96	18.25	32.97	25.55	245	0.025
20	6.56	18.27	33.01	25.92	210	0.047
30	4.18	18.31	33.08	26.26	177	0.067
50	1.00	18.31	33.08	26.53	152	0.100
75	0.70	18.36	33.17	26.60	145	0.137
100	0.71	18.40	33.24	26.68	137	0.172
150	0.75	18.40	33.24	26.68	137	0.241
200	0.95	18.45	33.33	26.72	135	0.309
300	1.39	18.54	33.49	26.84	122	0.438
400	1.10	18.59	33.58	26.92	115	0.557
500	1.28	18.64	33.68	26.98	109	0.670
600	1.81	18.74	33.86	27.10	98	0.775

Station 20

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1435–1535	14	7	1957	52°30′ N	151°30′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
22	11	02	080	SW 4	SW 4	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		9.8	18.25	32.97
9	27	8.81	18.25	32.97
17	〃	7.38	18.29	33.04
27	〃	5.31	18.33	33.12
45	〃	1.22	18.37	33.19
68	〃	0.82	18.38	33.21
90	〃	0.65	18.42	33.28
121	〃	0.69	18.44	33.31
173	30	0.76	18.45	33.33
260	〃	1.39	18.51	33.44
346	〃	1.20	18.60	33.60
433	〃	1.38	18.60	33.60

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle$st	△D
0	9.5	18.25	32.97	25.52	249	0
10	8.64	18.25	32.97	25.60	240	0.025
20	6.76	18.30	33.06	25.94	208	0.047
30	4.63	18.33	33.13	26.24	179	0.066
50	1.22	18.37	33.19	26.60	145	0.099
75	0.82	18.39	33.23	26.65	140	0.135
100	0.66	18.42	33.28	26.70	135	0.169
150	0.72	18.44	33.31	26.72	134	0.237
200	0.95	18.46	33.35	26.74	132	0.303
300	1.31	18.55	33.51	26.85	121	0.430
400	1.31	18.60	33.60	27.00	108	0.545

Table 20. (Continued)

Station 21

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2320–0020	14	7	1957	53°43′ N	151°30′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
22	09	02	092	SW 3	SW 4	5	11

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		9.0	18.29	33.04
10	23	8.86	18.25	32.97
18	〃	8.88	18.25	32.97
28	〃	5.17	18.25	32.97
46	〃	1.86	18.25	32.97
70	22	0.60	18.32	33.10
93	〃	0.11	18.32	33.10
139	〃	0.45	18.37	33.19
166	34	0.12	18.39	33.22
249	〃	0.79	18.42	33.28
332	〃	1.57	18.51	33.44
415	〃	1.35	18.54	33.49

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	9.0	18.29	33.04
10	8.86	18.25	32.97
20	8.14	18.25	32.97
30	5.17	18.25	32.97
50	1.86	18.26	32.99
75	0.50	18.32	33.10
100	0.16	18.32	33.11
150	0.32	18.37	33.20
200	0.39	18.40	33.24
300	1.26	18.48	33.39
400	1.39	18.53	33.48

Computed

σ_t	$10^5\triangle$st	$\triangle$D
25.60	240	0
25.59	241	0.024
25.68	232	0.048
26.07	195	0.069
26.40	164	0.105
26.56	149	0.145
26.59	146	0.182
26.65	140	0.253
26.70	135	0.322
26.77	129	0.464
26.81	125	0.592

Station 22

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0735–0825	15	7	1957	54°32′ N	158°04′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
22	12	44	080	SE 4	SE 3	4–5	10

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		8.8	18.24	32.95
10	16	8.79	18.24	32.95
19	〃	6.50	18.25	32.97
29	〃	1.80	18.29	33.04
49	15	0.93	18.32	33.10
73	〃	−0.03	18.30	33.06
97	〃	−0.10	18.34	33.13
121	36	−0.03	18.35	33.15
162	〃	0.51	18.45	33.33
243	〃	0.99	18.50	33.42
324	〃	1.19	18.54	33.49

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	8.8	18.24	32.95
10	8.79	18.24	32.95
20	6.50	18.25	32.98
30	1.76	18.29	33.04
50	0.89	18.32	33.10
75	−0.03	18.30	33.06
100	−0.10	18.34	33.13
150	0.35	18.42	33.28
200	0.73	18.47	33.37
300	1.13	18.52	33.46

Computed

σ_t	$10^5\triangle$st	$\triangle$D
25.57	243	0
25.58	242	0.024
25.91	211	0.047
26.45	159	0.066
26.55	150	0.097
26.56	149	0.134
26.62	143	0.171
26.71	135	0.240
26.76	130	0.307
26.81	125	0.434

Table 20. (Continued)

Station 23

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1630–1640	15	7	1957	55°20′ N	154°45′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
13	12	02	079	SE 3	SE 3	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		8.0	18.14	32.77
10	13	7.98	18.14	32.77
19	〃	7.86	18.19	32.86
29	〃	3.42	18.19	32.86
49	〃	1.04	18.29	33.04

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	8.0	18.14	32.77
10	7.98	18.14	32.77
20	7.42	18.19	32.86
30	3.41	18.19	32.86
50	1.04	18.29	33.04

Computed

σ_t	$10^5\triangle$st	$\triangle$D
25.54	246	0
25.55	245	0.025
25.70	230	0.048
26.17	186	0.069
26.49	155	0.103

Station 24

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0605–0725	16	7	1957	57°05′ N	155°03′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
19	07	43	075	S 3	SW 3	5	9

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		7.4	18.16	32.81
10	0	6.95	18.12	32.74
20	〃	6.28	18.19	32.86
30	〃	5.70	18.19	32.86
50	〃	2.57	18.23	32.94
75	〃	1.42	18.24	32.95
100	〃	0.61	18.28	33.03
150	〃	0.41	18.33	33.12
200	〃	0.67	18.39	33.22

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	7.4	18.17	32.83
10	6.95	18.12	32.74
20	6.28	18.19	32.86
30	5.70	18.19	32.86
50	2.57	18.23	32.94
75	1.42	18.24	32.95
100	0.61	18.28	33.03
150	0.41	18.33	33.12
200	0.67	18.39	33.22

Computed

σ_t	$10^5\triangle$st	$\triangle$D
25.68	232	0
25.66	234	0.023
25.85	216	0.046
25.92	210	0.067
26.30	173	0.106
26.40	164	0.148
26.50	154	0.188
26.59	146	0.263
26.66	139	0.334

Table 20. (Continued)

Station 25

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1045–1125	16	7	1957	57°06′ N	154°57′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
22	07	44	058	SW 3	SW 3	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		6.9		
10	0	6.72		
20	〃	5.26		
30	〃	4.33		
50	〃	2.15		
75	〃	1.37		
100	〃	0.76		
150	〃	0.67		
200	〃	0.83		

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	6.9					
10	6.72					
20	5.26					
30	4.33					
50	2.15					
75	1.37					
100	0.76					
150	0.67					
200	0.83					

Station 26

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0950–1015	17	7	1957	58°28′ N	153°16′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
22	04	44	068	SW 1	SW 1	5	9

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		6.0	18.12	32.74
10	0	2.27	18.21	32.90
20	〃	0.98	18.21	32.90
30	〃	0.95	18.26	32.99
50	〃	0.92	18.27	33.01
75	〃	0.81	18.27	33.01
100	〃	0.76	18.31	33.08

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	6.0	18.12	32.74	25.79	222	0
10	2.27	18.21	32.90	26.30	173	0.020
20	0.98	18.21	32.90	26.39	165	0.037
30	0.95	18.26	32.99	26.45	159	0.053
50	0.92	18.27	33.01	26.48	156	0.085
75	0.81	18.27	33.01	26.48	156	0.124
100	0.76	18.31	33.08	26.54	151	0.162

Table 20. (Continued)

Station 27

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0335–0410	18	7	1957	58°37′ N	150°50′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
20	03	44	100	SSW 1	SSW 1	4	14

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		10.2	17.86	32.27
10	0	8.78	17.86	32.27
20	〃	0.15	18.16	32.81
30	〃	0.01	18.21	32.90
50	〃	−0.35	18.21	32.90
75	〃	−1.06	18.20	32.88
100	〃	−0.34	18.19	32.86

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	10.2	17.86	32.27
10	8.78	17.86	32.27
20	0.15	18.16	32.81
30	0.01	18.21	32.90
50	−0.35	18.21	32.90
75	−1.06	18.20	32.88
100	−0.34	18.19	32.86

Computed

σ_t	$10^5 \triangle st$	$\triangle D$
24.80	316	0
25.02	296	0.031
26.35	169	0.054
26.43	161	0.070
26.45	159	0.103
26.47	157	0.142
26.42	162	0.182

Station 28

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0940–1005	18	7	1957	58°31′ N	150°49′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
11	02	47	110	ESE 1	S 2	4–5	

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		12.3		
10	0	9.08		
20	〃	2.67		
30	〃	−1.16		
50	〃	−1.57		
75	〃	−1.68		
100	〃	−1.70		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	12.3		
10	9.08		
20	2.67		
30	−1.16		
50	−1.57		
75	−1.68		
100	−1.70		

Computed

σ_t	$10^5 \triangle st$	$\triangle D$

Table 20. (Continued)

Station 29

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0325–0400	19	7	1957	58°38′ N	148°25′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
09	13	02	105	E 4	SE 2	4	18

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		10.6	17.69	31.96
10	10	10.33	17.69	31.96
20	〃	−0.24	18.11	32.72
29	15	−1.27	18.21	32.90
49	〃	−1.70	18.26	32.99
73	〃	−1.71	〃	〃
97	〃	−1.74	〃	〃

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	10.6	17.69	24.50
10	10.33	17.69	24.55
20	−0.24	18.11	26.30
30	−1.29	18.21	26.48
50	−1.70	18.26	26.55
75	−1.71	18.26	26.55
100	−1.74	18.26	26.55

Computed

σ_t	$10^5\triangle$st	$\triangle$D
24.50	345	0
24.55	340	0.034
26.30	173	0.060
26.48	156	0.077
26.55	150	0.107
26.55	150	0.145
26.55	150	0.176

Station 30

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1250–1335	19	7	1957	58°50′ N	145°54′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
07	07	50	100	ENE 3	E 2	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		10.7	17.86	32.27
10	10	10.50	17.86	32.27
20	〃	−0.21	18.21	32.90
29	13	−1.41	18.31	33.08
49	〃	−1.72	18.34	33.13
74	〃	−1.79	18.35	33.15
98	〃	−1.63	18.41	33.26

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	10.7	17.86	32.27
10	10.50	17.86	32.27
20	−0.21	18.21	32.90
30	−1.42	18.31	33.08
50	−1.72	18.34	33.13
75	−1.79	18.35	33.15
100	−1.63	18.41	33.26

Computed

σ_t	$10^5\triangle$st	$\triangle$D
24.72	324	0
24.75	321	0.032
26.44	160	0.056
26.62	143	0.072
26.69	136	0.100
26.70	135	0.133
26.78	128	0.166

Table 20. (Continued)

Station 31

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2155–2235	19	7	1957	58°00′ N	144°00′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
05	06	61	115	NE 1	××	5	15

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		12.1	18.04	32.59
10	3	9.45	18.01	32.70
20	〃	−0.25	18.26	32.99
30	〃	−1.62	18.29	33.04
50	〃	−1.70	18.30	33.06
75	〃	−1.71	18.32	33.10
100	〃	−1.71	18.34	33.13

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	12.1	18.04	32.59	24.72	324	0
10	9.45	18.01	32.70	25.13	285	0.031
20	−0.25	18.26	32.99	26.51	154	0.053
30	−1.62	18.29	33.04	26.61	145	0.067
50	−1.70	18.30	33.01	26.62	144	0.096
75	−1.71	18.32	33.01	26.65	140	0.132
100	−1.71	18.34	33.13	26.69	136	0.166

Station 32

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0950–1015	20	7	1957	58°59′ N	143°11′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
09	06	61	105	N 3	××	5	14

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		11.7	17.99	32.50
10	0	10.30	18.02	32.56
20	〃	5.12	18.06	32.63
30	10	−0.05	18.26	32.99
49	〃	−1.33	18.31	33.08
74	〃	−1.41	18.36	33.17

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	11.7	17.99	32.50	24.72	324	0
10	10.30	18.02	32.56	25.00	297	0.031
20	5.12	18.06	32.63	25.80	221	0.057
30	−0.05	18.26	32.99	26.50	154	0.076
50	−1.33	18.31	33.08	26.50	154	0.107
75	−1.41	18.36	33.17	26.70	135	0.143

Table 20. (Continued)

Station 33

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0930–0950	21	7	1957	58°44′ N	146°19′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
09	05	02	110	E 2	E 1	5	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		11.6		
10	0	11.27		
20	〃	—0.31		
30	〃	—1.71		
50	〃	—1.68		
75	〃	—1.79		
100	〃	—1.75		

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	11.6					
10	11.27					
20	—0.31					
30	—1.71					
50	—1.68					
75	—1.79					
100	—1.75					

Station 34

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0500–0530	22	7	1957	58°43′ N	145°47′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
07	05	00	125	ENE 1	××	5	14

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		11.9	17.97	32.47
10	0	11.50	18.16	32.81
20	〃	1.08	18.20	32.88
30	〃	—1.42	18.30	33.06
50	〃	—1.72	18.32	33.10
75	〃	—1.83	18.37	33.19
100	〃	—1.79	18.42	33.28

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	11.9	17.97	32.47	24.67	328	0
10	11.50	18.16	32.81	25.00	297	0.032
20	1.08	18.20	32.88	26.37	167	0.055
30	—1.42	18.30	33.06	26.61	144	0.070
50	—1.72	18.32	33.10	26.65	140	0.099
75	—1.83	18.37	33.19	26.72	134	0.134
100	—1.79	18.42	33.28	26.80	126	0.167

Table 20. (Continued)

Station 35

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1120–1140	22	7	1957	58°44′ N	146°52′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
07	05	02	128	NE 1	××	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		11.9		
10	2	11.34		
20	〃	0.20		
30	4	−1.57		
50	〃	−1.72		
75	〃	−1.78		
100	〃	−1.79		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	11.9		
10	11.34		
20	0.20		
30	−1.57		
50	−1.72		
75	−1.78		
100	−1.79		

Computed

σ_t	$10^5\triangle st$	$\triangle D$

Station 36

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1015–1105	24	7	1957	55°08′ N	146°16′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
18	08	45	109	S 3	S 4	5	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		11.1	18.14	32.77
10	10	11.07	18.14	32.77
20	〃	9.08	18.21	32.90
30	〃	4.14	18.27	33.01
49	〃	0.94	18.28	33.03
74	〃	−0.10	18.34	33.13
98	13	−0.47	18.34	33.13
147	〃	−0.27	18.41	33.26
196	〃	1.03	18.51	33.44
293	〃	1.10	18.57	33.55
365	25	1.21	18.61	33.62
457	〃	1.48	18.68	33.75
548	〃	1.88	18.74	33.86
731	〃	2.22	18.89	34.13

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	11.1	18.14	32.77
10	11.07	18.14	32.77
20	9.08	18.21	32.90
30	4.14	18.27	33.01
50	0.94	18.28	33.03
75	−0.10	18.34	33.13
100	−0.47	18.34	33.13
150	−0.20	18.42	33.28
200	1.30	18.52	33.46
300	1.11	18.57	33.55
400	1.31	18.64	33.68
500	1.66	18.71	33.80
600	1.97	18.79	33.95

Computed

σ_t	$10^5\triangle st$	$\triangle D$
25.03	294	0
25.03	294	0.029
25.48	251	0.057
26.20	238	0.082
26.50	154	0.121
26.62	143	0.158
26.65	140	0.194
26.75	131	0.262
26.85	121	0.325
26.89	117	0.444
26.98	109	0.558
26.98	109	0.668
27.00	107	0.778

Table 20. (Continued)

Station 37

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0420–0548	25	7	1957	53°49′ N	145°58′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
16	14	02	118	SSE 4	SE 2	5	10

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		13.4		
10	5	12.97		
20	〃	4.43		
30	〃	1.03		
48	16	0.57		
72	〃	—0.20		
96	〃	—0.40		
137	24	—0.90		
183	〃	1.00		
274	〃	1.14		
365	〃	1.18		
457	25	1.34		
548	〃	1.63		
731	〃	2.23		
914	〃	2.34		

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	13.4					
10	12.97					
20	4.43					
30	1.03					
50	0.57					
75	—0.20					
100	—0.44					
150	—0.37					
200	1.02					
300	1.15					
400	1.24					
500	1.47					
600	1.78					
800	2.27					

Station 38

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1310–1405	25	7	1957	52°53′ N	145°44′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
13	10	02	112	ESE 4	ESE 4	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		12.5		
10	15	7.92		
19	〃	3.50		
29	〃	0.81		
46	23	—0.10		
70	〃	—0.55		
93	〃	—1.30		
130	30	—0.68		
173	〃	0.78		
260	〃	0.84		
346	〃	1.45		
415	35	1.47		
497	〃	1.81		
663	〃	2.16		
829	〃	2.32		

Interpolated / Computed

Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	12.5					
10	7.92					
20	3.24					
30	0.76					
50	—0.17					
75	—0.70					
100	—1.20					
150	—0.01					
200	0.81					
300	1.12					
400	1.46					
500	1.82					
600	2.02					
800	2.29					

Table 20. (Continued)

Station 39

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2325–0030	25	7	1957	51°35′N	145°25′E

dd	ff	ww	TTT	Sea	Swell	C	Tr
16	10	47	098	SE 3	SE 2	5	12

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		11.2		
10	0	7.23		
20	〃	4.08		
30	〃	2.05		
50	〃	−0.10		
75	〃	−0.52		
100	〃	−1.20		
146	15	−0.74		
194	〃	0.73		
291	〃	1.13		
388	〃	1.20		
497	7	1.42		
597	〃	1.74		
796	〃	2.21		
995	〃	2.31		

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle$st	$\triangle$D
0	11.2					
10	7.23					
20	4.08					
30	2.05					
50	−0.10					
75	−0.52					
100	−1.20					
150	−0.62					
200	0.75					
300	1.13					
400	1.22					
500	1.42					
600	1.74					
800	2.21					

Station 40

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0940–1020	26	7	1957	50°00′N	145°55′E

dd	ff	ww	TTT	Sea	Swell	C	Tr
00	08	02	095	00	SE 1	5	13

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		8.1	17.86	32.27
10	0	7.54	17.92	32.38
20	〃	4.94	17.93	32.39
30	〃	0.92	17.98	32.48
50	〃	−0.79	18.12	32.74
75	〃	−0.99	18.34	33.13
100	〃	−0.77	18.37	33.19
150	〃	−0.14	18.37	33.19
200	〃	0.50	18.41	33.26
300	〃	0.58	18.43	33.30
400	〃	0.79	18.55	33.51
500	〃	1.38	18.57	33.55

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle$st	$\triangle$D
0	8.1	17.86	32.27	25.14	284	0
10	7.54	17.92	32.38	25.30	268	0.028
20	4.94	17.93	32.39	25.64	236	0.053
30	0.92	17.98	32.48	26.06	196	0.075
50	−0.79	18.12	32.74	26.32	172	0.114
75	−0.99	18.34	33.13	26.68	137	0.153
100	−0.77	18.37	33.19	26.70	135	0.187
150	−0.14	18.37	33.19	26.68	137	0.255
200	0.50	18.41	33.26	26.70	135	0.323
300	0.58	18.43	33.30	26.72	134	0.458
400	0.79	18.55	33.51	26.89	117	0.584
500	1.38	18.57	33.55	26.87	119	0.703

Table 20. (Continued)

Station 41

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0040–0135	27	7	1957	48°00′ N	145°51′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
05	03	43	145	NE 1	SE 2	4	12

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		11.6	17.81	32.18
10	0	10.66	17.82	32.20
20	〃	10.02	17.86	32.27
30	〃	3.36	18.14	32.77
50	〃	0.07	18.25	32.97
75	〃	−1.20	18.31	33.08
100	〃	−1.16	18.35	33.15
149	7	−0.80	18.42	33.28
199	〃	0.63	18.49	33.40
298	〃	0.98		
398	〃	1.19		
492	10	1.34		
591	〃	1.64		
788	〃	2.06		
985	〃	2.25		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	11.6	17.81	32.18
10	10.66	17.82	32.20
20	10.02	17.86	32.27
30	3.36	18.14	32.77
50	0.07	18.25	32.97
75	−1.20	18.31	33.08
100	−1.16	18.35	33.15
150	−0.78	18.42	33.28
200	0.63		
300	0.98		
400	1.19		
500	1.37		
600	1.65		
800	2.07		

Computed

σ_t	$10^5\triangle$st	$\triangle$D
24.50	345	0
24.65	330	0.034
24.83	313	0.056
26.10	192	0.081
26.49	155	0.116
26.62	143	0.153
26.69	136	0.188
26.78	128	0.254

Station 42

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1010–1110	8	8	1957	49°32′ N	146°22′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
36	08	43	125	NNE 2	NNE 2	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		11.5		
10	10	11.32		
20	〃	7.28		
30	〃	3.81		
46	22	0.25		
70	〃	−0.34		
93	〃	−0.58		
139	〃	0.22		
185	32	0.68		
254	〃	0.81		
339	〃	0.45		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	11.5		
10	11.32		
20	7.28		
30	3.81		
50	0.15		
75	−0.39		
100	−0.46		
150	0.33		
200	0.70		
300	0.62		

Computed

σ_t	$10^5\triangle$st	$\triangle$D

Table 20. (Continued)

Station 43

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1025–1055	9	8	1957	52°45′ N	146°30′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
05	05	41	111	NE 2	NE 1	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		13.5		
10	0	13.50		
20	〃	6.37		
30	〃	2.61		
49	10	0.66		
74	〃	0.00		
98	〃	−0.25		
148	〃	0.18		
192	17	0.74		
288	〃	0.93		
385	〃	1.02		
481	〃	1.33		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	13.5		
10	13.50		
20	6.37		
30	2.61		
50	0.66		
75	0.00		
100	−0.24		
150	0.26		
200	0.75		
300	0.94		
400	1.06		

Computed

σ_t	$10^5\triangle st$	$\triangle D$

Station 44

Time (G.M.MT.)	Day	Month	Year	Latitude	Longitude
0350–0405	10	8	1957	55°20′ N	146°40′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
09	08	01	110	E/N 3	NNE 2	6	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		5.9		
10	5	4.69		
20	〃	3.68		
30	〃	1.81		
50	8	0.37		
75	〃	0.53		
99	〃	0.20		
149	〃	0.43		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	5.9		
10	4.69		
20	3.68		
30	1.81		
50	0.37		
75	0.53		
100	0.20		
150	0.43		

Computed

σ_t	$10^5\triangle st$	$\triangle D$

Table 20. (Continued)

Station 45

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
2200–2220	10	8	1957	57°55′ N	147°57′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
31	03	02	125	NW 3	NW 2	5	17

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		13.3		
10	4	13.22		
20	〃	10.95		
30	5	—1.30		
50	〃	—1.69		
75	〃	—1.89		
100	〃	—1.76		

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	13.3					
10	13.22					
20	10.95					
30	—1.30					
50	—1.69					
75	—1.89					
100	—1.76					

Station 46

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1035–1102	11	8	1957	58°51′ N	147°56′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
22	03	00	105	SE 2	SE 1	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		12.3		
10	0	12.12		
20	〃	1.42		
30	〃	—1.17		
50	〃	—1.52		
75	〃	—1.66		
100	〃	—1.63		

Interpolated				Computed		
Depth (m)	T (°C)	Cl (‰)	S (‰)	σ_t	$10^5\triangle st$	$\triangle D$
0	12.3					
10	12.12					
20	1.42					
30	—1.17					
50	—1.52					
75	—1.66					
100	—1.63					

Table 20. (Continued)

Station 47

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
0620–0645	12	8	1957	58°27′ N	150°49′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
31	06	00	175	NW 2	NW 1	5	10

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		9.2		
10	5	8.36		
20	〃	1.03		
30	〃	0.26		
49	13	−0.87		
74	〃	−0.68		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	9.2		
10	8.36		
20	1.03		
30	0.26		
50	−0.87		
75	−0.66		

Computed

σ_t	$10^5\triangle st$	$\triangle D$

Station 48

Time (G.M.T.)	Day	Month	Year	Latitude	Longitude
1120–1200	15	8	1957	58°24′ N	151°15′ E

dd	ff	ww	TTT	Sea	Swell	C	Tr
25	03	45	110	WSW 1	SW 1	×	×

Observed

Depth (m)	Angle (°)	T (°C)	Cl (‰)	S (‰)
0		10.3		
10	0	6.92		
20	〃	0.95		
30	〃	0.64		
50	〃	0.03		
75	〃	0.28		
100	〃	0.21		

Interpolated

Depth (m)	T (°C)	Cl (‰)	S (‰)
0	10.3		
10	6.92		
20	0.95		
30	0.64		
50	0.03		
75	0.28		
100	0.21		

Computed

σ_t	$10^5\triangle st$	$\triangle D$

9. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Collected with NORPAC Standard Net

（北太平洋標準ネット採集によるプランクトン湿排水量及び湿重量記録）

North Pacific Standard Net, 45cm × 180cm, conical and made of bolting silk GG 54, having approximately 0.33mm mesh aperture, was hauled from the depth of nearly 150m to the surface at each hydrographic station.

A current-meter (flow-meter) was mounted at the center of the mouth part of the net to record the amount of water filtered.

Measurement of wet displacement volume was carried out with aspiration filtering apparatus, and wet weight was measured on the samples which remained on the filtering disc of the apparatus.

Measurement was made by the members of the Chair of Planktology of the University.

Table 21. Plankton volume data (45cm × 180cm, GG 56,

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Length of wire run out (m)	Revolutions of flow-meter	Volume of water filtered
1	Ho 1	49-57 N 144-46 E	June 17	2340	150	1130	23.0
2	Ho 2	51-57 N 144-45 E	18	2013	〃	1227	25.0
3	Ho 3	55-00 N 144-49 E	19	1642	〃	1310	26.5
4	Ho 4	58-53 N 147-48 E	20	1753	100	686	13.9
5	Ho 6	58-31 N 150-52 E	21	1933	〃	755	15.1
6	Ho 7	58-31 N 153-13 E	22	1945	〃	986	20.0
7	Ho 8	56-50 N 150-14 E	23	1835	150		
8	Ho 9	55-00 N 147-00 E	24	1330	〃	812	19.8
9	Ho 10	53-49 N 147-00 E	24	2310	〃	983	23.7
10	Ho 11	52-30 N 147-00 E	25	0900	〃	888	21.4
11	Ho 12	51-14 N 147-06 E	25	1735	〃	822	19.9
12	Ho 13	50-00 N 147-12 E	26	0400	〃	940	22.7
13	Ho 14	48-00 N 147-00 E	26	1900	〃	838	20.2
14	Ho 15	46-30 N 148-00 E	July 12	0940	〃	1112	26.8
15	Ho 16	47-38 N 150-05 E	12	2100	〃	920	22.2
16	Ho 17	48-53 N 151-32 E	13	0915	〃	955	23.0
17	Ho 18	50-05 N 152-56 E	13	1940	〃	923	22.2
18	Ho 19	52-00 N 153-02 E	14	1510	〃	710	17.7
19	Ho 20	52-30 N 151-30 E	14	2335	〃	1108	26.7
20	Ho 21	53-43 N 151-30 E	15	0820	〃	1028	25.0
21	Ho 22	54-32 N 153-04 E	15	1640	〃	1005	24.2
22	Ho 23	55-20 N 154-15 E	16	0125	50	388	9.3
23	Ho 24	57-05 N 155-03 E	16	1505	150	985	23.7
24	Ho 26	58-28 N 153-16 E	17	1850	100	628	15.1
25	Ho 27	58-37 N 150-50 E	18	1235	〃	577	13.7
26	Ho 29	58-38 N 148-25 E	19	1230	〃	586	14.1
27	Ho 30	58-50 N 145-54 E	19	2200	〃	621	14.9
28	Ho 31	58-00 N 144-00 E	20	0700	〃	590	14.2
29	Ho 32	58-59 N 143-11 E	20	1840	80	514	12.3
30	Ho 36	55-08 N 146-16 E	24	1910	150	955	23.0
31	Ho 37	53-49 N 145-58 E	25	1320	〃	939	22.7
32	Ho 38	52-53 N 145-14 E	25	2205	〃	1062	25.6
33	Ho 39	51-35 N 145-25 E	26	0825	〃	866	20.9
34	Ho 40	50-00 N 145-55 E	26	1840	〃	861	20.8
35	Ho 41	48-00 N 145-51 E	27	0940	〃		
36	Ho 42	49-32 N 146-22 E	Aug. 8	1910	〃	1040	25.1
37	Ho 43	52-45 N 146-30 E	9	1915	〃	993	24.0
38	Ho 44	55-20 N 146-40 E	10	1240	〃	910	22.0
39	Ho 45	57-55 N 147-57 E	11	0640	100	610	14.7
40	Ho 46	58-51 N 147-56 E	11	1935	〃	570	13.7
41	Ho 47	58-27 N 150-49 E	12	1530	〃	635	15.3
42	Ho 48	58-24 N 151-15 E	15	2020	〃	587	14.1

NORPAC Standard Net) 1957 cruise to the Okhotsk Sea

Displacement volume per 1000m³ of water (cc)	Wet weight per 1000 m³ of water (gr)	Jellyfish removed before measurement	Remarks
260	264		Many *Calanus plumchrus* and diatoms
400	480		Many *Calanus plumchrus*, *Metridia* and euphausiids
1750	1628		Many diatoms
385	288		Many *Metridia* and diatoms
397	271		〃
300	270		Many diatoms, *Metridia* and euphausiids
(398)	(319)		Many *Metridia* and diatoms
1220	850		Many diatoms
1205	1092		Many *Metridia* and diatoms
655	439	14	Many diatoms and *Calanus cristatus*
653	552	9	Many diatoms and *Calanus plumchrus*
616	802		Many diatoms
74	99		Many diatoms, small-sized copepods and *Calanus plumchrus*
93	71	3	Many *Calanus plumchrus* and small-sized copepods
360	360	8	Many *Metridia* and small-sized copepods
304	296		Many diatoms and *Calanus plumchrus*
550	450	3	Many *Calanus cristatus*, *Calanus plumchrus*, *Metridia* and small-sized copepods
175	262		Many *Calanus plumchrus*
748	622		Many *Calanus plumchrus* and *Themisto*
280	232		Many *Calanus plumchrus* and small-sized copepods
124	186		〃
215	161		〃
295	300		〃
132	139	1	Many small-sized copepods and 7 euphausiids
144	160		Many small-sized copepods and 1 euphausiid
530	461		Many small-sized copepods and 32 euphausiids
604	422	1	Many *Calanus plumchrus*, small-sized copepods and *Themisto*
176	126		Many small-sized copepods
527	382		〃
435	334		Many *Calanus plumchrus*
132	154		Many *Calanus plumchrus*, *Themisto* and small-sized copepods
704	691		Many diatoms and *Calanus plumchrus*
384	316	1	Many diatoms, *Calanus plumchrus* and small-sized copepods
48	91		Many small-sized copepods
(297)	(218)		Many diatoms
80	147		Many small-sized copepods and *Themisto*
500	508		Many *Calanus plumchrus*
300	300		Many diatoms and *Calanus plumchrus*
102	224		Many small *Aglantha* and small-sized copepods
146	292		Many small-sized copepods and *Calanus plumchrus*
196	334		Many small-sized copepods
177	284		〃

10. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Collected with Fish Larva Net

（稚魚ネット採集によるプランクトン湿排水量及び湿重量記録）

Fish larva net, 130cm × 450cm, was towed at a speed of about 2 knots during ten minutes exposing half the area of mouth part above the sea surface. Because of the inconstancy in such operation as well as because the net was not provided with any type of current-meter, the data given here represent only the relative abundance of the catches in a tow.

Wet displacement volume of samples was measured with aspiration filtering apparatus, and the wet weight weighing was carried out on the materials left on the filtering disc of the apparatus.

Measurement was made by the members of the Chair of Planktology of the University.

Table 22. Plankton volume data (Fish-larva

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Displacement volume of total samples in a tow(cc)	Wet weight of total samples in a tow (gr)
1		46-31 N 144-18 E	June 16	2000	70	60.0
2	Ho 1	49-57 N 144-46 E	17	1930	7.5	7.0
3	Ho 2	51-57 N 144-45 E	18	2030	50	39.0
4		55-38 N 145-15 E	19	2000	10	11.0
5	Ho 4	58-53 N 147-48 E	20	2030	30	27.0
6	Ho 6	58-31 N 150-52 E	21	2030	17.5	11.3
7	Ho 7	58-31 N 153-13 E	22	2030	22.5	22.5
8		57-00 N 150-26 E	23	1900	24	26.4
9		54-04 N 147-00 E	24	2000	70	67.0
10		51-00 N 147-00 E	25	1930	70	58.0
11	Ho 14	48-00 N 147-00 E	26	2000	42	42.0
12		46-00 N 145-15 E	July 11	1954	90	83.5
13		47-39 N 149-48 E	12	1940	96	110.4
14	Ho 18	50-05 N 152-56 E	13	1930	46	43.9
15		52-15 N 152-20 E	14	1920	410	408.0
16		54-45 N 153-24 E	15	1920	220	212.0
17		57-06 N 154-57 E	16	1925	110	110.0
18	Ho 26	58-28 N 153-16 E	17	1940	22.5	16.5
19		58-31 N 150-49 E	18	1920	180	115.0
20		58-43 N 146-38 E	19	1915	5	12.0
21		58-56 N 143-13 E	20	1945	5	3.0
22		58-44 N 146-19 E	21	1900	40	34.5
23		58-44 N 146-52 E	22	2000	25	24.0
24	Ho 36	55-08 N 146-16 E	24	2015	380	343.0
25		52-58 N 146-16 E	25	1920	320	303.2
26	Ho 40	50-00 N 145-55 E	26	1925	190	187.5
27		46-19 N 144-19 E	Aug. 7	1900	10	7.5
28		49-29 N 146-22 E	8	1840	5	5.0
29	Ho 43	52-45 N 146-30 E	9	1855	180	190.0
30		56-17 N 147-07 E	10	1900	2	1.4
31	Ho 46	58-51 N 147-56 E	11	1925	6	3.0
32		58-22 N 150-55 E	12	1905	4	4.8

Net) on 1957 cruise to the Okhotsk Sea

Removed before measurement		Remarks
Squid	Jellyfish	
	5	Many euphausiids, small-sized copepods and zoea
		Many small *Themisto*
	1	Many small-sized copepods
	1	Many *Themisto* and polychaetes
	2	Many small-sized copepods
	17	Many zoea
		Many small-sized copepods
	1	Many *Calanus plumchrus* and small-sized copepods
	1	Many small *Themisto* and small-sized copepods
	1	Many diatoms and small-sized copepods
	12	Many *Themisto* and small-sized copepods
		Many small-sized copepods, *Themisto* and euphausiids
	7	Many small-sized copepods
		Many *Themisto*, *Calanus plumchrus* and small-sized copepods
		Many *Calanus plumchrus* and *Themisto*
		Many *Calanus plumchrus* and *Themisto*
	2	Many small-sized copepods and *Themisto*
		Many small-sized copepods and zoea
	85	Many zoea and jellyfishes
	15	Many jellyfishes and zoea
	60	Many jellyfishes
	6	Many zoea
	3	Many zoea
9		Many *Themisto*
		Many *Themisto*
	5	Many *Themisto*
	3	Many small-sized copepods and large jellyfishes
	2	Many small-sized copepods
		Many *Calanus plumchrus* and *Themisto*
	172	Many jellyfishes and *Themisto*
	18	Many jellyfishes and zoea
		Many small-sized copepods and zoea

11. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Collected with Underway Catcher

（航走採集によるプランクトン湿排水量及び湿重量記録）

The sampling was made with Handy Underway Plankton Catcher, Model II, by towing at about 9 knots for 30 minutes.

Each sample was divided into phyto- and zooplankton respectively by using a conical double net, i.e., outer net, 8.5cm × 39cm, made of bolting silk XX 13, having 0.11mm mesh aperture, and inner net, 8.5cm × 28cm, made of bolting silk GG 26, having 1.01mm mesh opening.

As no current-meter was provided on the instrument, the data presented indicate, merely for comparison, the abundance of catches at the surface layer in different localities.

Wet displacement volume was measured by means of aspiration filtering apparatus, and the wet weight was measured on the samples retained on the filter disc of the apparatus.

Measurement was made by the members of the Chair of Planktology of the University.

Table 23. Plankton volume data (Handy Underway

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Length of wire run out (m)	Kinds of net
1		45-45 N 143-11 E	June 16	1134-1204	25	G G 26
						X X 13
2		46-36 N 144-18 E	〃	1915-1945	〃	G G 26
						X X 13
3		48-27 N 145-07 E	17	0918-0948	〃	G G 26
						X X 13
4	Ho 1	49-57 N 144-46 E	〃	1845-1915	〃	G G 26
						X X 13
5		51-10 N 144-45 E	18	1236-1306	〃	G G 26
						X X 13
6	Ho 2	51-57 N 144-45 E	〃	2043-2113	〃	G G 26
						X X 13
7		54-30 N 144-53 E	19	1203-1233	〃	G G 26
						X X 13
8		55-22 N 145-07 E	〃	2015-2045	〃	G G 26
						X X 13
9		57-30 N 146-55 E	20	1315-1345	〃	G G 26
						X X 13
10		57-47 N 146-55 E	21	1111-1141	〃	G G 26
						X X 13
11		58-31 N 152-42 E	22	1016-1046	〃	G G 26
						X X 13
12		57-45 N 151-53 E	23	1023-1053	〃	G G 26
						X X 13
13		55-04 N 147-22 E	24	0921-0951	〃	G G 26
						X X 13

Catcher Model II) on 1957 cruise to the Okhotsk Sea

Displacement volume of total samples in a tow (cc)	Wet weight of total samples in a tow (gr)	Remarks
1	0.05	Many zoea
1	0.2	
1	0.1	Many small-sized copepods
2	1.5	
1	0.1	Many eggs, diatoms and dinoflagellates
1	0.2	
1	0.1	Many eggs
1	0.6	
1	0.4	Many eggs
1	0.9	
1	0.6	Many eggs and *Sagitta*
2	1.8	
1	0.05	Many diatoms
1	1	
1	0.1	Many *Calanus plumchrus*
1	0.2	
1	0.2	Many eggs
1	0.4	
1	0.05	Many eggs
1	0.05	
1	0.05	Many eggs
1.5	0.8	
1	0.05	Many eggs
1	0.5	
1	0.05	
1	0.05	

12. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Collected by Simultaneous Horizontal Tows of Double Net

（二重ネット同時水平採集によるプランクトン湿排水量及び湿重量記録）

Six Double Nets (outer net, 30cm × 150cm, made of bolting silk XX 13, having about 0.11mm mesh aperture; inner net, 30cm × 100cm, made of bolting silk GG 26, having about 1.01mm mesh aperture) were towed horizotally at depths of 0, 7, 14, 28, 42, and 70m respectively during 30 minutes at five stations (Ho 1, 2, 4, 6, 8), but at stations 6 and 8 two casts were eliminated.

A current-meter was mounted at the center of the mouth ring of the net to register the amount of water filtered.

Measurement of wet displacement volume was made with the aspiration filtering apparatus, and wet weight was measured on the samples which remained on the filter disc of the apparatus.

Measurement was made by the members of the Chair of Planktology of the University.

Table 24. Plankton volume data (Double net: Outer, 30cm × 150cm, XX13;

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Length of wire run out (m)	Revolutions of flow-meter	Volume of water filtered (m^3)
1	Ho 1	49-57 N 144-46 E	June 17	2023-2055	0 7 14 28 42 70	11741	126.1
2	Ho 2	51-57 N 144-45 E	18	1852-1922	0 7 14 28 42 70	11235	120.6
3	Ho 4	53-53 N 147-48 E	20	1910-1940	0 7 14 28 42 70	11170	119.9
4	Ho 6	53-31 N 150-52 E	21	2023-2043	0 14 42 70	12375	132.9
5	Ho 8	56-50 N 150-14 E	23	1803-1833	0 14 42 70	11140	119.6

Inner, 30cm × 100cm, GG26) on 1957 cruise to the Okhotsk Sea (Simultaneous tow)

Kinds of net		Displacement volume per 1000m³ of water (cc)	Wet weight per 1000m³ of water (gr)	Jellyfish removed before measurement	Remarks
G G	26	7.9	2.8		Many diatoms
X X	13	159.0	146.7		
G G	26	7.9	4.0		Many eggs
X X	13	79.3	92.8		
G G	26	11.9	6.3		Many eggs and *Metridia*
X X	13	63.4	78.5		
G G	26	39.7	45.2		Many *Metridia* and *Calanus plumchrus*
X X	13	47.6	48.4		
G G	26	31.7	33.3		Many *Calanus plumchrus, C. cristatus* and *Metridia*
X X	13	31.7	38.9		
G G	26	7.9	7.1		Many *Metridia*
X X	13	15.7	28.0		
G G	26	8.5	1.7		Many eggs
X X	13	24.8	30.7		
G G	26	8.5	1.7		Many eggs and *Sagitta*
X X	13	33.2	39.8		
G G	26	16.6	19.1	5	Many *Eucalanus bungii* and *Aglantha*
X X	13	215.5	225.5		
G G	26	87.0	87.0	11	Many *Metridia*
X X	13	8.5	2.5		
G G	26	364.8	368.1	1	Many *Metridia*
X X	13	20.7	37.3		
G G	26	58.0	33.2	1	Many *Metridia*
X X	13	8.5	4.1		
G G	26	8.5	1.7	1	
X X	13	8.5	1.7		
G G	26	8.5	0.9		Many *Metridia*
X X	13	8.5	1.7		
X X	13	8.5	5.8		
X X	13	33.3	23.4		
G G	26	8.5	8.5		Many *Calanus plumchrus*
X X	13	16.7	23.4		
G G	26	8.5	5.8		Many *Calanus plumchrus* and *Metridia*
X X	13	8.5	3.3		
G G	26	7.5	3.8	1	Many mysid larvae
X X	13	30.1	36.1		
G G	26	7.5	6.0	2	Many mysids, *Clione* and *Limacina* larvae
X X	13	7.5	0.8		
G G	26	7.5	1.5		Many mysids, *Clione* and *Limacina* larvae
X X	13	22.6	30.1		
G G	26	33.9	30.8		Many *Metridia*
X X	13	7.5	8.3		
G G	26	8.4	2.5		Many small-sized copepods
X X	13	25.1	39.9		
G G	26	8.4	0.8		
X X	13	15.0	12.8		
G G	26	8.4	0.4		Many *Calanus plumchrus*
X X	13	8.4	8.3		
G G	26	8.4	3.0		
X X	13	8.4	15.0		

13. Data on Wet Displacement Volume and Wet Weight of Plankton Samples Collected by Horizontal Tows of Double Net

（二重ネット水平採集によるプランクトン湿排水量及び湿重量記録）

A Double Net, identical with that described in the explanation of the preceding table was towed just below the sea surface at a speed of about 2 knots during ten minutes.

A current-meter was mounted at the center of the mouth ring of the net to register the amount of water filtered by the net.

Measurement of wet displacement volume was made with aspiration filtering apparatus, and wet weight was measured on the samples retained on the filter disc of the apparatus.

Measurement was made by the members of the Chair of Planktology of the University.

Table 25. Plankton volume data (Double Net: Outer, 30cm × 150cm, XX13;

No. of station	Corresponding No. of hydrographic station	Position	Ship's date (1957)	Ship's time	Revolutions of flow-meter	Volume of water filtered (m^3)	Kinds of net
1		43-31 N 144-18 E	June 16	1755-1805	3200	34.5	G G 26 X X 13
2		55-22 N 145-07 E	19	2002-2012			G G 26 X X 13
3	Ho 7	58-31 N 153-13 E	22	2005-2015	1770	19.0	G G 26 X X 13
4	Ho 9	55-00 N 147-00 E	24	1348-1358	3928	35.5	G G 26 X X 13
5	Ho 11	52-30 N 147-00 E	25	0917-0927	3841	34.8	G G 26 X X 13
6	Ho 12	51-14 N 147-06 E	25	1747-1757	3805	34.4	G G 26 X X 13
7	〃	51-14 N 147-06 E	25	1747-1757			G G 26
8	Ho 14	48-00 N 147-00 E	26	2008-2018			G G 26

Inner, 30cm × 100cm, GG 26) on 1957 cruise to the Okhotsk Sea (Surface tow)

Displacement volume per 1000^3m of water (cc)	Wet weight per $1000m^3$ of water (gr)	Removed before measurement		Remarks
		Squid	Jellyfish	
28.0	25.2		2	Many *Aglantha* and euphausiids
224.0	173.6			
(28.0)	(11.2)			Many annelids
(28.0)	(8.4)			
52.6	10.5			Many eggs
315.6	394.5			
140.8	98.6			Many diatoms
844.8	844.8			
57.5	51.7			Many diatoms
229.8	390.7			
29.1	11.6			Many small-sized copepods
348.8	409.9			
(28.0)	(5.6)			Many young *Themisto*
(56.0)	(56.0)	2		Many *Themisto* and *Clione* larvae

14. Data on Wet Displacement Volume of Plankton Samples Taken with Kitahara's Net

(北原式ネット採集によるプランクトン湿排水量記録)

A Kitahara's Net, made of bolting silk XX 13, having about 0.11mm mesh aperture, was hauled from approximately 100m to the surface at every hydrographic station.

A current-meter was mounted at the center of the mouth ring of the net to register the amount of water filtered by the net.

Measurement was made by the planktologists of the Hokkaido Regional Fisheries Research Laboratory.

Table 26. Plankton volume data (Kitahara's

No. of station	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Wire run out (m)	Wire angle (°)	Revolutions of flow-meter
1	Ho 2	51-57 N 144-45 E	June 18	2010	100		failed
2	Ho 3	55-00 N 144-49 E	19	1705	〃		418
3	Ho 4	58-53 N 147-48 E	20	1950	〃		350
4	Ho 6	58-31 N 150-52 E	21	1945	〃		315
5	Ho 7	58-31 N 153-13 E	22	1940	〃		failed
6	Ho 8	56-50 N 150-14 E	23	1840	〃		failed
7	Ho 9	55-00 N 147-00 E	24	1340	〃		failed
8	Ho 10	53-49 N 147-00 E	24	2340	〃		failed
9	Ho 11	52-30 N 147-00 E	25	0850	〃		510
10	Ho 12	51-14 N 147-06 E	25	1735	〃		404
11	Ho 13	50-00 N 147-12 E	26	0905	〃		538
12	Ho 14	48-00 N 147-00 E	26	1910	〃		480
13	Ho 15	46-30 N 148-00 E	July 12	0940	〃	16.5	609
14	Ho 16	47-38 N 150-05 E	12	2100	〃	13.0	555
15	Ho 17	48-53 N 151-32 E	13	0915	〃	18.0	510
16	Ho 18	50-05 N 152-56 E	13	1940	〃	20.0	530
17	Ho 19	52-00 N 153-02 E	14	1510	〃	14.5	500
18	Ho 20	52-30 N 151-30 E	14	2335	〃	32.8	306
19	Ho 21	53-43 N 151-30 E	15	0820	〃	24.0	565
20	Ho 22	54-32 N 153-04 E	15	1640	〃	28.0	595
21	Ho 23	55-20 N 154-45 E	16	0125	50	24.0	(280)
22	Ho 24	57-05 N 155-03 E	16	1505	100	14.0	475
23	Ho 26	58-28 N 153-16 E	17	1850	〃	6.0	450
24	Ho 27	58-37 N 150-50 E	18	1235	〃	5.0	382
25	Ho 29	58-38 N 148-25 E	19	1230	〃	25.0	500
26	Ho 30	58-50 N 145-54 E	19	2200	〃	15.0	447
27	Ho 31	58-00 N 144-00 E	20	0700	〃	11.0	503
28	Ho 32	58-59 N 143-11 E	20	1840	80	26.0	(490)
29	Ho 36	55-08 N 146-16 E	24	1910	100	15.0	504
30	Ho 37	53-49 N 145-58 E	25	1320	〃	18.0	415
31	Ho 38	52-53 N 145-44 E	25	2205	〃	21.0	495
32	Ho 39	51-35 N 145-25 E	26	0825	〃	8.0	483
33	Ho 40	50-00 N 145-55 E	26	1840	〃	5.0	failed
34	Ho 41	48-00 N 145-51 E	27	0940	〃	5.0	413
35	Ho 42	49-32 N 146-22 E	Aug. 8	1915	〃	17.0	155
36	Ho 43	52-45 N 146-30 E	9	1915	〃	12.0	551
37	Ho 44	55-20 N 146-40 E	10	1240	〃	8.0	350
38	Ho 45	57-55 N 147-57 E	11	0640	〃	20.0	515
39	Ho 46	58-51 N 147-56 E	11	1935	〃	3.0	454
40	Ho 47	58-27 N 150-49 E	12	1530	〃	22.0	488
41	Ho 48	58-24 N 151-15 E	15	2020	〃		490

net, XX13) on 1957 cruise to the Okhotsk Sea

Volume of water filtered (m^3)	Displacement volume per $1000m^3$(cc)	Dominant species
	(723)	*Fragilaria* sp., *Bacteriosira fragilis* ?
2.5	4520	*Rh. hebetata, Ch. convolutus, Th'rix longissima*
2.1	1265	*Bacteriosira* sp. ?
1.9	723	*Fragilaria* sp., *Bacteriosira fragilis* ?
	(542)	〃
	(542)	*Rh. hebetata, Ch. convolutus, Th'rix longissima*
	(2531)	*Ch. atlanticus, Ch. convolutus, Th'rix longissima*
	(1627)	〃
3.0	1800	〃
2.4	1988	〃
3.2	3435	〃
2.9	542	*Coscinodiscus radiatus*
3.6	180	*Coscinodiscus radiatus, Ch. atlanticus*
3.3	723	*Ch. radicans, Ch. Convolutus, Ch. atlanticus, Th'rix longissima*
3.1	1627	*Ch. atlanticus, Ch. convolutus, Th'rix longissima*
3.2	723	*Ch. atlanticus, Coscinodiscus radiatus*
3.0	542	Copepoda, *Coscinodiscus*
1.8	1446	Copepoda, *Ceratium longipes*
3.4	361	〃
3.6	723	*Ch. radicans, Ceratium longipes, Ch. atlanticus, Cosci. radiatus*
(1.7)	361	Copepoda, *Ceratium longipes*
2.8	180	〃
2.7	542	*Thalassiosira* spp.
2.2	180	*Coscinodiscus radiatus*
3.0	542	*Rhizosolenia hebetata*
2.7	180	Copepoda, *Peridinium, Limacina*
3.0	180	〃
(3.0)	361	〃
3.0	723	Copepoda, *Ceratium longipes*
2.5	180	*Ceratium longipes*, Copepoda, *Rh. hebetata*
3.0	2531	*Ch. atlanticus, Ch. convolutus*
2.9	723	〃
	(180)	〃
2.5	1084	〃
0.9	1446	*Ch. atlanticus*
3.3	723	*Ceratium longipes*, Copepoda
2.1	1084	*Th'rix longissima*
3.0	1446	*Ceratium longipes*, Copepoda
2.7	542	*Ceratium longipes, Ch. atlanticus, Rh. hebetata*
2.9	542	*Coscinodiscus radiatus*
2.9	542	*Coscinodiscus radiatus*

15. Data on Fish Larvae Collected with Fish Larva Net
(稚魚ネット採集による稚魚記録)

Fish larva net, 130cm in mouth diameter and 450cm in length, was towed at the surface layer at a speed as low as about 2 knots for ten minutes keeping the net exposed to the extent of half of mouth ring above the sea surface.

Identification of fish larvae was made by Shin-ichi Satō and Kiyu Kobayashi.

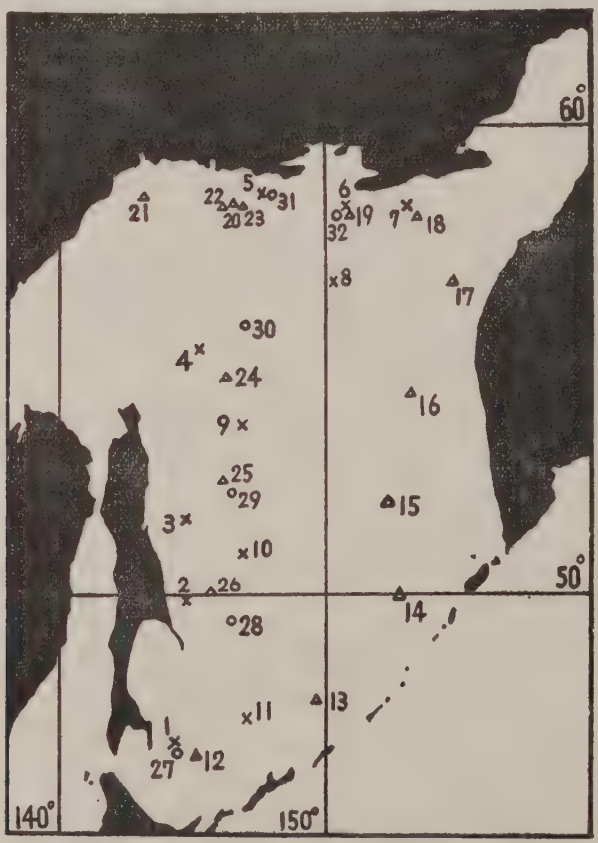

Fig. 10 Stations of fish-larva net tow on 1957 cruise of the "Hokusei Maru"
× 1～11 stations on first cruise
△ 12～26 stations on second cruise
○ 27～32 stations on third cruise

Table 27. Data on collection of fish larvae on 1957 cruise to the Okhotsk Sea

No. of collection	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Fish-larvae collected (Species or group)	Number of individuals
1		46°-31′N 144°-18′E	June 16	2000	*Hemilepidotus*	9
					Tilesina gibbosa SCHMIDT	1
					Unidentified (f)	7
2	Ho 1	49°-57′N 144°-46′E	17	1930	*Bathymaster*	1
					Hexagrammos	1
					Hemilepidotus	1
					Fish eggs (b)	
3	Ho 2	51°-57′N 144°-45′E	18	2000	*Bathymaster*	1
					Hexagrammos	1
					Fish eggs (b)	
4		55°-38′N 145°-15′E	19	2000	No fish-larva	
5	Ho 4	58°-53′N 147°-48′E	20	2030	*Hexagrammos*	1
					Agoninae	1
					Unidentified (a)	12
					Fish eggs (a)	
					Fish egg (b)	
6	Ho 6	58°-31′N 150°-52′E	21	2030	Cottinae	7
					Unidentified (a)	59
					Unidentified (b)	10
					Unidentified (c)	6
					Unidentified (d)	19
					Fish eggs (a)	
					Fish eggs (b)	
7	Ho 7	58°-31′N 153°-13′E	22	2030	*Lumpenus*	3
					Hexagrammos	2
					Cottinae	8
					Unidentified (a)	101
					Unidentified (c)	593
					Unidentified (d)	46
					Unidentified (g)	5
					Fish eggs (a)	
					Fish eggs (b)	
8	Ho 8	56°-50′N 150°-14′E	23	1900	*Lumpenus*	3
					Unidentified (a)	67
					Unidentified (c)	99
					Fish eggs (a)	

Table 24. (Continued)

No. of collection	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Fish-larvae collected (Species or group)	Number of individuals
9		54°-04′ N 147°-00′ E	24	2000	No fish-larva	
10		51°-00′ N 147°-00′ E	25	1930	No fish-larva	
11	Ho 14	48°-00′ N 147°-00′ E	26	2000	*Ammodytes hexapterus* PALLAS	2
					Lumpenus	2
					Pleurogrammus azonus (J. & M.) (total length 76-132mm)	54
					Hexagrammos	6
					Hemilepidotus	7
12		46°-00′ N 145°-15′ E	July 11	1954	*Ammodytes hexapterus* PALLAS	7
					Hexagrammos	1
					Hemilepidotus	1
13		47°-39′ N 149°-48′ E	12	1940	*Ammodytes hexapterus* PALLAS	74
					Lumpenus	2
					Hemilepidotus	3
14	Ho 18	50°-05′ N 152°-56′ E	13	1930	*Ammodytes hexapterus* PALLAS	4
					Lumpenus	152
					Hemilepidotus	2
15		52°-15′ N 152°-20′ E	14	1920	*Lumpenus*	6
16		54°-45′ N 153°-24′ E	15	1920	No Fish-larva	
17	Ho 25	57°-06′ N 154°-57′ E	16	1925	Gadidae	2
18	Ho 26	58°-28′ N 153°-16′ E	17	1940	*Lumpenus*	3
					Gadidae	1
19	Ho 28	58°-31′ N 150°-49′ E	18	1920	*Ammodytes hexapterus* PALLAS	2
					Gadidae	10
20		58°-43′ N 146°-38′ E	19	1915	*Eumesogrammus praeciosus* (KRØYER)	1
					Pleuronectidae	2
					Gadidae	63
					Unidentified (a)	1
					Unidentified (c)	1
21		58°-56′ N 143°-13′ E	20	1945	*Eumesogrammus praeciosus* (KRØYER)	1
					Gadidae	4
22	Ho 33	58°-44′ N 146°-19′ E	21	1900	Cottinae	2
					Gadidae	60
					Unidentified (a)	1
					Unidentified (c)	79
					Unidentified (h)	1

Table 24. (Continued)

No. of collection	Corresponding No. of hydrographic station	Position	Ship's date	Ship's time	Fish-larvae collected (Species or group)	Number of individuals
					Fish eggs (c)	
23	Ho 35	58°-44′ N 146°-52′ E	22	2000	Cottinae	1
					Pleuronectidae	1
					Gadidae	100
					Unidentified (a)	1
					Unidentified (c)	104
					Fish eggs (c)	
24		55°-08′ N 146°-16′ E	24	2115	*Eumesogrammus praeciosus* (*KRØYER*)	5
					Cottinae	1
25		52°-58′ N 146°-16′ E	25	1920	*Ammodytes hexapterus* *PALLAS*	25
					Eumesogrammus praeciosus (*KRØYER*)	1
26	Ho 40	50°-00′ N 145°-55′ E	26	1925	No fish-larva	
27		46°-19′ N 144°-19′ E	Aug. 7	1900	No fish-larva	
28		49°-29′ N 146°-22′ E	8	1840	No fish-larva	
29	Ho 43	52°-45′ N 146°-30′ E	9	1855	No fish-larva	
30		56°-17′ N 147°-07′ E	10	1900	Pleuronectidae	2
31	Ho 46	58°-51′ N 147°-56′ E	11	1925	*Ammodytes hexapterus* *PALLAS*	1
					Pleuronectidae	1
					Unidentified (c)	1
32		58°-22′ N 150°-55′ E	12	1905	*Ammodytes hexapterus* *PALLAS*	3
					Unidentified (d)	2
					Unidentified (e)	1

16. Data on Herring Gill-Net Fishing

(ニシン流網試験記録)

The gill nets were of amilan and cotton, ranging in size 1.7 Sun.

Each Tan of net was 47 meters long approximately 6.2-6.9 meters deep.

Table 28. Data on herring fishing operation on 1957 cruise to the Okhotsk Sea

No. of fishing	Corresponding No. of hydrographic station	Date and Time (J.C.T.)				Position of net-set		Direction of drift "toward"	Weather	Wind	
		Net set		Net haul							
		Date	Time	Date	Time	Lat.	Long.			Direction	Force
1	Ho 1	06–17	1935	06–17	2240	49°–57′ N	144°–46′ E	0°	f	180°	2
2	Ho 3, Ho 4	06–20	2010	06–21	0230	58°–53′ N	147°–48′ E	300°	o	115°	2
3	Ho 6	06–21	1955	06–22	0320	58°–31′ N	150°–52′ E	180°	c	270°	3
4	Ho 7	06–22	1300	06–22	1730	58°–30′ N	150°–12′ E	270°	f	270°	4
5	Ho 7	06–22	2000	06–23	0240	58°–31′ N	150°–13′ E	100°	f	270°	4
6	Ho 18	07–13	1909	07–13	2245	50°–05′ N	152°–56′ E	25°	b	200°	3
7	Ho 25	07–16	1922	07–17	0235	57°–05′ N	154°–53′ E	300°	f	225°	1
8	Ho 26	07–17	1930	07–18	0243	58°–28′ N	153°–16′ E	35°	f	250°	1
9	Ho 28	07–18	1910	07–19	0245	58°–31′ N	150°–49′ E	340°	f	112°	1
10	Ho 32	07–20	1941	07–21	0240	58°–56′ N	143°–15′ E	290°	d	90°	3
11	Ho 33	07–21	1855	07–22	0400	58°–44′ N	146°–19′ E	330°	c	90°	1
12	Ho 35	07–22	1929	07–23	0230	58°–44′ N	146°–52′ E	40°	c	45°	2
13		07–24	2023	07–25	0215	58°–08′ N	146°–30′ E	300°	f	180°	3
14	Ho 46	08–11	1850	08–12	0315	58°–52′ N	147°–56′ E	20°	b c	315°	2
15		08–12	1825	08–13	0330	58°–22′ N	150°–55′ E	225°	b	290°	2
16		08–15	1950	08–15	2300	58°–24′ N	151°–15′ E	230°	b c	280°	1
17		08–16	0005	08–16	0307	58°–24′ N	151°–15′ E	230°	b	270°	1

Table 28. (Continued)

No. of fishing	Surface temperature (°C)	Colour of sea	Trans-parency (m)	Depth of net set (m)	Account of gill-net							Number of fish caught	
					Amilan net			Cotton net			Total	Total catch	Catch par Tan
					Mesh 1.7Sun (5.2cm)	Mesh 1.8Sun (5.5cm)	Mesh 1.9Sun (5.8cm)	Mesh 1.7Sun (5.2cm)	Mesh 1.8Sun (5.5cm)	Mesh 1.9Sun (5.8cm)			
1	3.2	7	5	0					15		15	0	0
2	5.2	5	15	0					15		15	29	1.9
3	5.8	5	7	0				7	23	5	35	144	4.1
4	4.5	5	7	130 (Bottom)					3		3	3	1.0
5	4.5	5	7	7 & 10					10		10	32	3.2
6	7.4	6		0		10					10	0	0
7	6.9	5		0	4	30	4				38	2200 (110kan)	57.9 (2.9kan)
8	6.0	5	9	0	4	30	4				38	1300 (60kan)	34.2 (1.9kan)
9	12.3	4	14	0	4	30	4	2	13		53	900 (50kan)	17.0 (0.9kan)
10	11.7	4	14	0 & 7	4	30	4				38	4	0.1
11	11.6	4	14	0	4	30	4				38	9400 (480kan)	247.4 (12.6kan)
12	11.9	4		4	4	30	4				38	5100 (240kan)	134.2 (6.3kan)
13	11.0	5		0	4	30	4				38	0	0
14	12.3		18	0	4	29	4	4	18	5	64	410 (23kan)	6.4 (0.4kan)
15	9.2	5	9.5	0	4	29	4	4	18	5	64	about 302,000 (16,000kan)	about 4718.8 (250kan)
16	10.3			0					10		10	9000 (470kan)	900.0 (47kan)
17	10.3			0					10		10	25,000 (1300kan)	2500.0 (130kan)

17. Data on Measurement of Biological Characters of Herring, *Clupea pallasii* CUVIER & VALEN CIENNES

(ニシン生物学的測定記録)

Table 29. Distribution of total length of herring on 1957 cruise to the Okhotsk Sea

No. of fishing		2	3	7	8	9	11	12	14	15	Total
Sampling date		6-21	6-22	7-17	7-18	7-19	7-22	7-23	8-12	8-13	
Class of length (cm)	24.5	1			3						4
	25.5	1			6	1			1	2	11
	26.5	3	7	8	16	8	15	6	25	15	103
	27.5	17	21	22	94	41	67	66	44	63	435
	28.5	7	27	32	58	89	50	86	63	153	565
	29.5		31	29	11	37	6	23	32	65	234
	30.5		45	28	1	23	3	2	6	5	113
	31.5		31	18		6	1				56
	32.5		8	2		1					11
	33.5		1								1
n		29	171	139	189	206	142	183	171	303	1533

18. Chemical Studies on "Oily-herring" Meat

(油ニシン肉に関する化学的研究)

Studies on the rate of the putrefaction of "Oily-herring" meat and on the effect of "Sustane 1-F" used to prevent discoloration (oxidation) of the fish oil during storage by freezing or by salting were carried out.

The estimation was made by E. Tanikawa. "Oily-herring" meat was found to be less decomposable in comparison with the meat of other kinds of fish, and the efficacy of "Sustane" in preventing discoloration was clearly observed during the freezing storage.

Table 30. Results of tests of the rate of putrefaction of "Oily-herring" meat
(油ニシン肉の腐敗速度試験)

Items. / Time elapsed (経過時間)	at 3°C			at 25°C			at 37°C		
	pH	V.B.-N.	V. A.	pH	V.B.-N.	V. A.	pH	V.B.-N.	V. A.
0 hr.	7.0	14.2	13.2	7.0	14.2	13.2	7.3	13.9	13.2
6	—	—	—	—	—	—	6.9	16.5	16.4
12	—	—	—	—	—	—	6.9	19.4	22.1
18	—	—	—	6.9	17.3	14.2	6.9	49.1	86.0
24	6.7	15.9	15.0	6.7	22.2	12.3			
36	—	—	—	6.5	37.3	30.0			
48	6.3	16.7	15.6						
72	6.6	18.1	16.8						
96	6.9	20.0	13.7						
120	7.3	20.0	15.0						
144	7.5	20.5	15.0						
168	7.4	20.8	8.2						
192	7.2	29.7	10.8						
216	7.2	46.4	16.4						

pH: Hydrogen ion concentration of the meat (魚肉の水素イオン濃度)
V.B.-N: Volatile basic nitrogen (*mg%*) (揮発性塩基窒素)
V. A.: Volatile acid (*mg%*) (揮発性酸)

Table 31. Values of temperature coefficient (Q_{10}) and temperature constant (B) of various kinds of fish meat
(種々魚肉の温度係数Q_{10}, 温度恒数B)

	Saury (サンマ)	Atka-mackerel (ホッケ)	Mackerel (サバ)	Oily-herring (油ニシン)
Q_{10}	1.3 (below 40°C)	3.5 (below 25°C)	3.6 (below 35°C)	1.9 (below 35°C)
B	5,000	21,000	22,000	11,400

Table 32. Effect of "Sustane 1-F" in preventing the discoloration of fish oil during storage by freezing or by salting
(冷凍及び塩蔵におけるサスチン1-Fの油焼防止効果)

Sample	Frozen meat (冷凍魚肉)				Salted meat (塩蔵魚肉)			
Time elapsed (days)	after 40 days		after 60 days		after 40 days		after 60 days	
Addition of "Sustane 1-F"	added (添加)	no added (無添加)	added	no added	added	no added	added	no added
A.V.	8.03	8.57	8.41	12.52	9.57	10.52	9.50	13.75
S.V.	202	192	182	202	215	202	172	191
I.V.	119	125	121	124	120	127	124	115
P.O.	15.5	20.3	12.4	24.8	23.7	71.1	29.4	24.2

A.V.: Acid value (酸価)
S.V.: Saponification value (鹸化価)
I.V.: Iodine value (沃素価)
P.O.: Peroxide matter (過酸化物)